

**Social and Community Engaged Mine Closure:
An Exploration of Mine Closure Governance and Industry
Practices in Northern Canada**

By © Miranda Monosky

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ABSTRACT

The inevitable closure and remediation phase of a mine's lifecycle routinely causes negative socio-economic and environmental impacts for nearby communities. For mines operating on Indigenous territories, where communities have complex and nuanced connections to land and varying levels of jurisdiction, these issues are further exacerbated by the exclusion of Indigenous voices from planning and decision-making. Using qualitative document analysis and semi-structured interviews, this research sought to understand company approaches to socio-economic closure planning and community engagement across the North, and then examined Nunavik, Québec, as a case study to explore mine closure governance. The results show that mine companies across the North are inadequately addressing the socio-economic aspects of closure and inconsistently involving communities in the closure planning process. In Nunavik, government policies do little to regulate these aspects of mine closure, which has allowed for considerable variation in closure planning strategies between the companies operating in the region. These shortcomings in closure policies and industry practices mean governments and companies risk reproducing past closure and remediation failures.

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List of Acronyms

CIRNAC – Crown-Indigenous Relations and Northern Development Canada
CRP – Closure and Reclamation Plan
DGNQ – Direction General du Nouveau Québec
ESIA – Environmental and Social Impact Assessment
FNNND – First Nation of Na-cho Nyak Dun
FRAN – Fonds du Restor-Action
IBA – Impact and Benefit Agreement
IK – Indigenous Knowledge
IQ – Inuit Qaujimajatuqangit
IQA – Indians of Québec Association
JBNQA – James Bay and Northern Québec Agreement
LHC – Landholding Corporation
NQIA – Northern Quebec Inuit Association
NV – Northern Village
KEAC – Kativik Environmental Advisory Committee
KEQC – Kativik Environmental Quality Commission
KRG – Kativik Regional Government
MCP – Mine Closure Plan
MELCC – Ministère de l'Environnement et de la Lutte Contre les Changements Climatiques
MERN - Ministère de l'Énergie et des Ressources Naturelles
MVLWB – Mackenzie Valley Land and Water Board
NIRB – Nunavut impact Review Board
NMEF – Nunavik mineral exploration fund
NWB – Nunavut Water Board
NWT – Northwest Territories
SLEMA – Snap Lake Environmental Monitoring Agency
SLO – Social License to Operate
TK – Traditional Knowledge
YKDFN – Yellowknives Dene First Nation

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CHAPTER ONE: INTRODUCTION

1.1. Introduction

Since its inception, Canada has been a country reliant on resource extraction – particularly minerals and metals – and the separation of Indigenous peoples from the land where those resources exist. During the post-war economic boom of the 1950s and 60s, Canada’s settler government began to reimagine its provincial and territorial North¹ as a site for vast economic gains through mineral extraction from lands they saw as largely uninhabited and open for exploitation. During this time, the federal government heavily subsidized industrial development to stimulate what they hoped would be a Northern mineral boom, bringing more projects and more development (Loo, 2017). Major mining developments in the North introduced economic and environmental changes to areas characterised by Indigenous populations practicing community systems of subsistence harvesting and mutual aid (Boutet, Keeling, & Sandlos, 2015).

This development agenda would, the government hoped, have the dual benefit of generating wealth for the country’s new settler population and bringing Euro-centric social and economic systems to remote lands and the Indigenous peoples who have lived there (Coates, 1985; Keeling & Sandlos, 2009). Keeling and Sandlos (2009) succinctly explain that Northern mineral development “was one of the primary means ... by which the Canadian government attempted to advance a modernization agenda in the North, in effect colonizing the region through the subsidized provision of infrastructure and capital ... to support the development of

¹ There are many definitions of “North” in Canada and internationally. For the purpose of this thesis, the North refers to the three territories (Yukon, Northwest Territories, and Nunavut) and the two provincial northern regions where Inuit are the demographic majority (Nunavik and the northern portion of Labrador).

private sector and strategic military mega-projects” (p. 122). The state extended its reach into Northern Indigenous territories to experiment with what they believed to be an underdeveloped region. Canada attempted to bring the North (both its land and its peoples) into the modern age by introducing wage labour, imposing European health and education services on communities, and encouraging non-Indigenous settlement in the North.

Many of the mines opened in the 20th century ended up abandoned and/or poorly remediated, leaving behind harmful legacies that continue to cost Canada billions of dollars (Office of the Auditor General of Canada, 2002). Mining is a volatile boom-bust industry, and the closure of a mine site is more often the result of economic and technical circumstances that make extraction unprofitable, as opposed to the exhaustion of an orebody (Laurence, 2006). Closure and remediation have also historically been an afterthought for both industry and government (Laurence, 2006; Mackasey, 2000). This means closure frequently happens abruptly, with little warning or time for impacted communities to prepare. Mines are simply abandoned with minimal or no remediation efforts (Dance, 2015; Mackasey, 2000). While Canada did not see the northern mineral boom that the government had hoped for,² the mines that did operate in this era went on to cause decades, even generations of environmental, social, and economic harm to northern peoples due to loose regulations and virtually non-existent closure laws (Dance, 2015; Mackasey, 2000). Over 150 abandoned mine sites have been identified in Yukon, Northwest Territories, and Nunavut, and the Northern Abandoned Mine Reclamation Program has a multi-billion dollar budget to address just 8 of the most severe cases (CIRNAC, 2019; Mackasey, 2000).

² In the Northwest Territories, for example, only six mines operated between 1950 and 1997 (Buell, 2006).

When a mine closes, nearby communities may experience a multitude of negative impacts ranging from environmental contamination and subsequent health risks to economic decline, outmigration, and community-wide disruptions, even collapse. These kinds of impacts have been observed across the globe and can last for decades. Mine wastes and degrading infrastructure can cause dangerous chemicals to leach into the receiving environment, harming aquatic and terrestrial ecosystems (Franks, Boger, Ote, & Mulligan, 2011; Hudson-Edwards, Jamieson, & Lottermoser, 2011; Kossoff et al., 2014; Ripley, Redmann, & Crowder, 1996). For remote communities with few industries, the closure of a major mine site can leave them without adequate financial resources to support their families or maintain critical infrastructure and services (Bradbury & St-Martin, 1983; Burns & Church, 2018; Lapalme, 2003). Contracts end, travel to the region is reduced, and demand for goods and services declines (Bowes-Lyon, Richards, & McGee, 2009; Edwards & Maritz, 2019). Families may leave their homes to find work elsewhere, severing important social ties and further exacerbating community financial hardships (Archer & Bradbury, 1992; Kendall, 1992; Rodon & Lévesque, 2015). In the absence of alternative industries to absorb labour and fill investment gaps, the benefits a community may have experienced during the mine's life are unlikely to contribute meaningfully to long-term community sustainability (Bowes-Lyon et al., 2009; Rodon & Lévesque, 2015).

These impacts are more complex for mines operation on Indigenous lands, where Indigenous peoples have varying levels of jurisdiction and whose food security, sovereignty, and cultural practices are often tied to the environment. Indigenous communities can suffer the same economic and social hardships as southern and non-Indigenous peoples, especially if many community members are working for the mine and/or a significant amount of mining royalties are being collected by residents and local governments. Additionally, though, Indigenous peoples

suffer additional impacts due to the integral role that land and water play in not only their survival but also their cultural well-being. For many Indigenous peoples, the land, all of its human and non-human inhabitants, and the activities that occur on it are critical components of their culture, identity, and social organization (Richmond, 2009; Scott, 2001; Todd, 2014; Willox et al., 2012). Toxic leaching can contaminate a community's source of drinking water, and the physical alterations to the landscape can inhibit their ability to hunt, trap, and harvest on the land and therefore hinder important cultural activities (Buell, 2006; Horowitz et al., 2018; Keeling & Sandlos, 2017). To degrade Indigenous lands via resource extraction is to degrade important place-based connections that form the basis of many Indigenous peoples' social and cultural identities. Thus, not only is the physical landscape changed in this context, but social and cultural landscapes are also altered in dramatic ways (Bainton & Holcombe, 2018; Cohen, 2017). Furthermore, Indigenous peoples have historically been left out of conversations about resource policy and mineral development on their lands, leaving them with little say in the matter (Hipwell, Mamen, Weitzner, & Whiteman, 2002).

Tighter regulations, scientific advances, and increased political pressure on the industry over the last 30 years have improved mine closure practices in Canada. International industry organizations have increasingly recognized the importance of mine closure as well, resulting in best practice guidelines that emphasize early planning, community engagement, and socially and culturally appropriate remediation techniques (International Council on Mining & Metals, 2019b). However, significant gaps remain in mine closure governance. Closure and remediation still tends to focus more on physically cleaning up the land and containing wastes, while the social and economic impacts of closure on nearby communities are neglected (Bainton & Holcombe, 2018; Beckett & Keeling, 2019; Laurence, 2006; Stacey, Naude, Hermanus, &

Frankel, 2010). Within Canada, closure and remediation governance are also inconsistent across provincial and territorial borders and little federal guidance exists, leaving some places and peoples more vulnerable than others (Dance, Monosky, Keeling, & Sandlos, in press).

Indigenous peoples have gained greater access to decision making with regard to resource development on their lands through the settlement of land claims and signing of Impact and Benefit Agreements (IBA), but engagement is often based on southern, settler expectations, attitudes, and beliefs that tend to tokenize Indigenous Knowledge (IK) to facilitate development (Baker & Westman, 2018; Dokis, 2015; Sandlos & Keeling, 2016a). IBAs and processes like Environmental and Social Impact Assessments (ESIA) also tend to focus on the development and operational issues, rather than closure. Furthermore, there are few successful examples of community engaged closure planning, and so literature on the topic is limited to descriptions of past failures or consultant reports without clear, demonstrable examples (Bainton & Holcombe, 2018; Morrison-Saunders, 2019; Stacey et al., 2010). Finally, despite the increase in both the quantity and authority of local and Indigenous agencies to control their lands and resources, ultimate decision making power still typically falls to the federal government regardless of IBAs or Indigenous land rights, limiting the potential for true local control over mining (Christensen & Grant, 2007; Nadasdy, 2003; White, 2002).

Many of the shortcomings of mine closure governance and industry practices can be observed in mine closure plans. Mine closure plans are the official documents submitted to and approved by provincial or territorial governments that outline exactly how a mine site will be closed and remediated. They describe the methods used for ceasing operations, decommissioning infrastructure, containing and removing wastes, and, sometimes, rehabilitating the surrounding

environment.³ Broadly, these plans are meant to ensure post-closure environmental quality and human safety.

Only in the late 20th century, as they confronted a growing list of abandoned and poorly remediated mine sites, did the provinces and territories begin implementing regulations that required mine companies to produce closure plans early in the mine's life. These regulations vary across jurisdictions, but typically companies are required to submit a preliminary closure plan before the mine receives authorization and must submit interim closure plans every five years to account for any changes in operations or the physical and social environments. These routine revisions allow for the incorporation of new knowledge as it is developed or collected, potentially creating space for Indigenous peoples to suggest changes that reflect the particular, evolving needs of their communities and lands. This rarely occurs, as will be discussed in Chapter Three, but it does offer opportunities for reflection and improvement if utilized effectively. More often, these revisions are limited to changing financial costs and incorporating new research about the site.

Depending on the location of the mine site, community consultations may or may not be required in mine closure planning. In cases where this is required, the consultants hired or the company employees responsible for consultations for closure planning will not necessarily be knowledgeable about good community engagement practices or the socio-economic aspects of closure. Legislation dictating what exactly these plans must contain, when they must be written and updated, and the processes for producing them vary considerably across the provinces and

³ Closure plans also usually explain methods for *progressive closure* or *progressive reclamation* – closure processes that occur while the mine is still in operations that facilitate the efficiency of closure later on at the end of the mine's life. For example, when one mine pit is depleted of valuable minerals steps may be taken to begin remediation for that pit despite the mine, as a whole, still being in operation.

territories. Consequently, there is little consistency in important components of mine closure plans, such as environmental assessment processes and financial commitments (Dance et al., in press). Furthermore, there are few legal obligations for mine companies to address socio-economic issues or conduct socio-economic impact assessments (Kabir, Rabbi, Chowdhury, & Akbar, 2015). As a result, closure planning in Canada continues to be more about finding engineering solutions to physical problems, while crucial socio-economic, cultural, and historical aspects of mine closure are left out of the conversation (Bainton & Holcombe, 2018; Beckett & Keeling, 2019; Roberts, Veiga, & Peiter, 2000).

1.2. Research Purpose and Questions

The purpose of this research was to understand the challenges and opportunities for incorporating Indigenous Knowledge (IK) and the negative socio-economic impacts of mine closure in closure plans in northern Canada. This was done by examining industry practices for mine closure planning across Canada's three territories (Yukon, Northwest Territories, and Nunavut) and two provincial regions of Inuit Nunangat⁴ (Nunavik and Nunatsiavut), and then focusing on Nunavik, Québec, as a case study in mine closure governance. Much of the research that has occurred on northern mine closure has sought to document the legacies left behind after closure has already occurred, whereas this research was a unique opportunity to examine (and contribute to) mine closure planning as it is happening. While the socio-economic impacts of mine closure experienced by many northern communities are fairly well documented in academic literature (Bainton & Holcombe, 2018; Bowes-Lyon et al., 2009; Gibson & Klinck, 2005; Horowitz et al., 2018; Sandlos & Keeling, 2016c), it is yet to be seen how closure planning is accounting for those impacts and how Indigenous peoples' contributions to remediation

⁴ Inuit homelands, which stretch across northern Canada from Yukon to Labrador.

planning could influence closure outcomes (Haalboom, 2014). Furthermore, although closure plans are critical documents that outline exactly how closure and remediation will happen and must be approved by the respective territorial or provincial government, they are rarely the subject of public or academic scrutiny.

This research aims to contribute to a greater understanding of the scope of issues being addressed in closure planning, how extractive industries are consulting with Indigenous communities, and if and how those consultations are integrated into closure plans. Beyond contributing to academic knowledge about mine closure, a primary objective of this research was to produce knowledge that was valuable for Nunavimmiut⁵ and Closure Plan Sub-Committee for the Glencore Raglan Mine in Nunavik. This project was designed in consultation with the Raglan Mine Closure Plan Sub-Committee to ensure that outcomes contributed positively to and facilitated their work, which will be discussed in greater detail later in this chapter.

Based on these objectives, this research sought to answer the following questions:

(1) How do mine closure plans differ across Northern Canada in terms of community engagement and the inclusion of non-technical issues and local/Indigenous knowledge?

(2) What knowledge and attitudes do government and industry actors in Nunavik have about mine closure impacts and Inuit engagement? And

(3) How do these different knowledge and attitudes shape the process of mine closure planning and Inuit engagement in Nunavik?

⁵ Inuit of Nunavik

To answer these questions, I used participant observation, semi-structured interviews, and document analysis to understand mine closure practices in the North and to map out the closure regulatory framework in Nunavik. By engaging with government and industry actors and participating in the work of the Raglan Mine Closure Plan Sub-Committee, this research can contribute to improvements in the industry and government's ability to produce mine closure plans that protect Indigenous land, resources, and communities. Furthermore, by uncovering gaps in knowledge, regulations, and closure planning practices in Nunavik, this research contributes to the expertise of the Raglan Mine Closure Plan Sub-Committee so its members are better equipped to design a mine closure plan that meets the needs, values, and priorities of the Inuit communities of Salluit and Kangiqsujaq. Secondary to those goals, this research contributes to both academic and industry knowledge about best practices for community engagement to ideally facilitate a shift from knowledge *about* the negative impacts of closure to improving applied methods for mine closure planning so those impacts can be avoided entirely.

1.3. Background: Resource Development in Nunavik

Mines are unique in that the location of extraction is based primarily on where valuable mineral deposits exist, and less so on proximity to other resources like transportation infrastructure and large labour pools. As a result, they are often located away from population centres and draw employment from rural communities. In the Canadian North, where small populations are spread over a vast geographic region, mines provide relatively high wages and infrastructure improvements to communities that may otherwise struggle to diversify and sustain formal economies (Gibson & Klinck, 2005). This makes the region especially susceptible to the impacts of mine closure. Communities that rely on mining then often struggle to diversify after a

mine closes, and few mining communities manage to do this successfully (Veiga, Scoble, & McAllister, 2001).

Mines in the North operate within a unique social, economic, and political environment. The region has a higher Indigenous population and a much younger overall population than the south (Southcott, 2014). There are also complex governance structures that can include federal, provincial, territorial, local, and Indigenous governments as well as a mosaic of historic treaties, modern land claims agreements, and IBAs. As stated, the Canadian government did not get the Northern mineral boom that they had hoped and subsistence livelihoods were not entirely eliminated by wage labour (Buell, 2006; Keeling & Sandlos, 2016). Despite this, the industry continues to play a major role in the Northern economy. Resource-related employment makes up a higher percentage of total jobs in the North than in the south, and mineral exploration, extraction, and processing contribute to much of the region's economic growth (Marshall, 2019; Northwest Territories Department of Industry Tourism and Investment, 2014; Southcott, 2014). The North is also characterized, though, by the leakage of mineral profits out of the region (Morgan, 2015). Technology and labour is brought in from the south, and the owners of mines and exploration companies are rarely northerners (J. N. Larsen & Fondahl, 2015). Recent institutional changes, like federal devolution and the growing authority of Indigenous governments, have increased local control over resources, but human and financial capacity challenges make it difficult for Northern authorities and organizations to effectively govern the mine industry (Coates et al., 2014; J. N. Larsen & Fondahl, 2015).

1.3.1. Case Study: Nunavik, Québec

Nunavik is Québec's northern region, covering one-third of the province from the 55th parallel to the northernmost coast of Québec along the Hudson Strait (Fig. 1.1). Inuit have lived

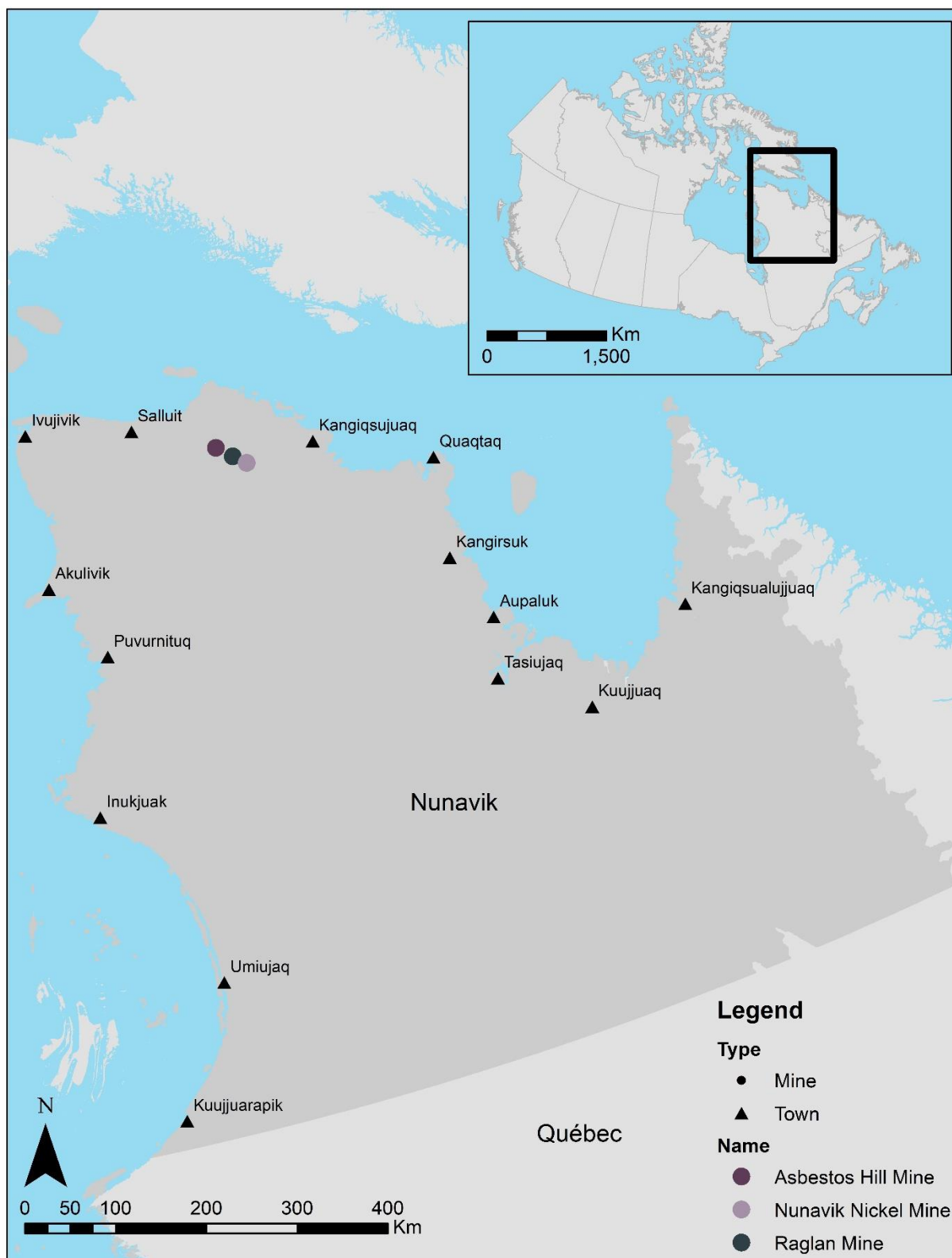


Figure 1.1: Map of Northern Villages and mines in Nunavik, Québec. Map produced in ArcGIS 10.7.1 using Statistics Canada (2016) data and contains information licensed under the Open Government License – Canada.

in this region for thousands of years, while European contact occurred only a few hundred years ago (Fabbi, Rodon, & Finke, 2017). Today, it is home to over 13,000 people, 11,800 of whom (85%) are Inuit (Statistics Canada, 2016). The population resides in 14 communities that trace the coast of Hudson's Bay and Ungava Bay, with Kuujuaq being the largest community and administrative centre. The communities range in population from 224 to 2862 (Institut de la statistique du Québec, 2020). Households typically engage in a combination of wage labour and subsistence hunting and fishing (Chabot, 2003; Ready & Power, 2018), with the majority of employment coming from public sector service provisions (Statistics Canada, 2016). Despite the increasing prevalence of wage employment in these communities, country foods remain an integral part of the region's food security (Chabot, 2003; Makivik Corporation, 2014b). The two active mines in the region (Raglan Mine and Nunavik Nickel) employ a relatively small number of Inuit, approximately 200 (Séguin, 2018), however the industry contributes significantly to the region's economic growth (Rogers, 2015), while IBAs⁶ bring in additional money and opportunities through profit sharing agreements, trust fund payments, preferential hiring, and training and education programs (Natural Resources Canada, 2007; Séguin & Larivière, 2011).

Mine closure planning in Nunavik occurs within a landscape of multi-level and ever-evolving governance systems and a unique commitment by Raglan Mine to community-engaged closure. Nunavik is not officially a self-governing region, but instead is a treaty territory with some self-governing structures but that Québec and the Crown still have significant authority over (Rodon, 2014). The region is governed by a complex web of provincial and regional authorities and private agreements. Provincially, the Ministère de l'Environnement et de la Lutte

⁶ Much of the benefits from IBAs are directed to the three communities that have signed IBAs with mining companies (Salluit, Kangiqsujuaq, and Puvirnituq), although Makivik Corporation uses the money they receive as a signatory on both IBAs to invest in projects throughout the region.

Contre les Changements Climatiques (MELCC) and Ministère de l'Énergie et des Ressources Naturelles (MERN) play the greatest role in regulating mine closure. Regionally, Makivik Corporation, the Kativik Regional Government (KRG), the Kativik Environmental Advisory Committee (KEAC), and the Kativik Environmental Quality Commission (KEQC) all have varying roles in regulating the mine industry and ensuring Inuit participation in decision making and planning. The two operating mines in Nunavik, the Glencore Raglan Mine⁷ and Canadian Royalties' Nunavik Nickel, are also governed by their respective IBAs signed between the companies, Makivik Corporation, and the communities most impacted by their activities.⁸ These agreements outline a variety of environmental, employment, financial, and engagement requirements that the companies must meet, in addition to provincial regulatory requirements. Raglan Mine's IBA laid the groundwork for the company's current unique closure planning strategy. It required the establishment of the Raglan Committee, a group comprised of three Inuit and three Raglan Mine representatives that meet multiple times each year to discuss mine operations and ensure the enforcement of the Raglan Agreement. In 2018, in response to community members' concerns and questions about Raglan Mine's tailings storage facility, the company established the Raglan Mine Closure Plan Sub-committee⁹ (which reports to the Raglan Committee) to work exclusively on reviewing the mine's closure strategies.

The Raglan Closure Plan Sub-committee has committed to meeting at least two times per year for the duration of the mine's lifecycle to create a space for the company and two communities to develop a closure plan that meets the needs and priorities of the communities.

⁷ The full, official name is Raglan Mine, a Glencore Company. For the sake of simplicity and ease of reading, Raglan Mine will be used throughout this thesis.

⁸ Salluit and Kangiqsujuaq are signatories of the Raglan Mine IBA, called the Raglan Agreement. Salluit, Kangiqsujuaq, and Puvirnituk are signatories of the Nunavik Nickel IBA, called the Nunavik Nickel Agreement.

⁹ Hereafter referred to as the Raglan closure sub-committee

Members include Raglan Mine employees specializing in environmental remediation and community relations, mine-community liaisons from Salluit and Kangiqsujuaq, leaders and landholding corporation (LHC) employees from the communities, the Mining Development Manager from Makivik, and experts in physical and social aspects of mine remediation (including my supervisor). Together, members have been meticulously reviewing the entirety of Raglan Mine's existing closure plan to determine what is missing or needs improving to ensure that the next version of the closure plan has adequate safeguards for Inuit land use, resources, and ecological integrity, while maximizing community benefits. It allows community representatives consistent and long-term access to the company to ask important closure-specific questions, learn about and become experts on closure and remediation, and push the company to address topics that are frequently left out of the closure planning process.

1.3.2. Political History of Nunavik

The history of Nunavik's path to self-governance¹⁰ is tied to Québec's desire to expand its reach northward and secure its own independence from the federal government. To Qallunaat,¹¹ Nunavik was a vast, untouched hinterland to be used and extracted from to suit the needs of the new settler population. Not only does Nunavik contain physical resources that benefit Québec in terms of financial capital and meeting energy needs, but it has also offered an opportunity for Québec to demonstrate its self-reliance and independence from the rest of Canada by solidifying its vast borders and uniting its (non-Indigenous) population through energy and resource development (Hervé, 2017; Wera & Martin, 2008). However, resource development in "Nouveau Québec" also resulted in the dramatic alteration and often destruction

¹⁰ Self-governance within the province of Québec as defined by the government. Inuit of course governed themselves before the arrival of Europeans.

¹¹ People who are not Inuit.

of traditional Inuit and Cree lands and has historically occurred with little or no consultation with the people who have occupied and sustained themselves on that land for thousands of years. In response to this lack of consultation, Cree and Inuit in Québec have worked to assert their rights to this land to protect their culture and livelihood activities, and to secure a future for themselves and their children.

Throughout the 20th century, Nunavik shifted between being under territorial, provincial, and federal governance regimes. Before the province became interested in the region in the early 1900s, Nunavimmiut had relationships with Europeans mainly through Christian missionaries and trade activities with the Hudson's Bay Company (HBC). The HBC became active in the region after being granted ownership over it by King Charles II in 1670 and later establishing trade posts (Kirkey, 2015). Originally included in the NWT, the Québec government acquired the region through an agreement with the federal government in 1912, without consulting any Inuit (Nungak, 2017; Rodon, 2014). Nevertheless, the Québec government continued to neglect Nunavik and eventually argued in court that Inuit fell under the Indian Act and therefore were the responsibility of the federal government (Rodon, 2014). The federal government agreed to assume responsibility for the region in 1939 and began providing services like RCMP (the first physical government presence in the region), family allowances, old age pensions, and rudimentary housing (Nungak, 2017). By the mid-1950s governing in Nunavik occurred primarily through the newly created federal Department of Northern Affairs and Natural Resources, whose main priority was to encourage Inuit society to adapt to modern Canadian society and give up their traditional livelihoods entirely to participate in the formal capitalist economy (Hervé, 2017). Around the same time, community councils were established in the

villages to stimulate civic engagement and develop initiatives at the local level,¹² but these were largely Qallunaat creations that went underutilized by Inuit (Hervé, 2017).

Québec would not substantially enter the governance picture until the 1960s when it became clear that there were significant opportunities for energy and resource development, at which point the province suddenly reimagined their Northern region as a vast site of resources waiting to be utilized for southern gain (Gombay, 2013). Stoked by growing Québec separatism and nationalism in the 60s and 70s, Quebecers believed the potential for natural resource development in Northern Québec would help the province meet its rapidly growing energy demands from its expanding southern population and increase its independence from the rest of Canada (Desbiens, 2004; Wera & Martin, 2008). The province quickly established the Direction General du Nouveau Québec (DGNQ) to provide services to Inuit, began giving Inuit communities French names, and negotiated an agreement with the federal government that would return governance responsibilities to Québec (Hervé, 2017; Nungak, 2017).

As part of its mission for autonomy, in the 1960s the provincial government in power nationalized Hydro-Québec and gave it full access to all rivers within Québec's borders (Wera & Martin, 2008). In 1971, premier Robert Bourassa announced the James Bay hydroelectric project, which would require flooding thousands of square kilometres of traditional Cree and Inuit lands without any Indigenous consultation (Gossage & Little, 2012). Bourassa promised the project would create tens of thousands of jobs, advance the economy, and bring Québec into the modern era (Ma, Hipel, & De, 2005). While the court case and subsequent negotiations would be a defining moment for Inuit to have their demands heard and assert their rights to their traditional

¹² Inuit communities have always had their own forms of governing and systems for solving community problems. These community councils were meant to promote civic engagement that was recognizable to non-Inuit provincial authorities.

territory, the hydro project itself was an important part of the assertion of settler Québécois identity (Desbiens, 2004).

In response to the James Bay project, Québec Cree and Nunavik Inuit began to formally organize. The Cree established the Indians of Québec Association (IQA) and Nunavik Inuit formed the Northern Québec Inuit Association (NQIA), which would later become Makivik Corporation. In the same year, the Québec government moved forward with their plans and began blasting large sections of land to facilitate dam construction (Gossage & Little, 2012). The IQA and NQIA quickly developed a partnership and took the government to court for violating Indigenous rights (Desbiens, 2004; Nungak, 2017). Throughout this court case Cree and Inuit had to teach Qallunaat about their relationships with and use of the lands affected, as well as their historic occupation of the land that covered thousands of years (Grand Council of the Crees, 2020; Nungak, 2017). No settler government nor the British Crown had ever signed treaties with the Indigenous peoples of this region, and Cree and Inuit argued that the hydroelectric project directly impacted their ownership and use of the affected land (Desbiens, 2004; Kirkey, 2015). After six months, Justice Albert Malouf sided with the Cree and Inuit. Malouf's ruling was quickly overturned in order to continue work on a project that was deemed to be in the province's best interest, but it forced the provincial government into treaty negotiations (Grand Council of the Crees, 2020; Nungak, 2017).

Compared to the many several-decades-long treaty negotiations seen in other parts of the country in the decades since, the James Bay and Northern Québec Agreement (JBNQA) negotiations were short. They were challenging, though, because Indigenous leaders had to learn to navigate a foreign court system while simultaneously trying to bridge the gap between settler and Indigenous understandings of nature and land (Nungak, 2017). Where Cree and Inuit view

natural resources as part of larger social and cultural relationships, Québec officials saw the region's water as a resource to meet financial and political needs (Desbiens, 2004). An agreement was reached after only one year, though, due to the importance of the James Bay project to the government (Rodon, 2014).

On November 11, 1975 the Government of Québec and the Cree and Inuit of Northern Québec signed Canada's first modern land claims treaty (Fabbi et al., 2017). The JBNQA provided Inuit with many provincial services that should have already been present in the region once it joined Québec, including health, education, justice, environmental, and economic services (Nungak, 2017). Inuit gained other benefits like monetary wealth, job opportunities, and the creation of Inuit governing bodies like Makivik Corporation, the KRG, the Nunavik Regional Board of Health and Social Services, and the Kativik School Board¹³ (Bird & Nixon, 2004; Fabbi et al., 2017; Rodon, 2014). These organizations had a greater level of influence over the region than the previously underutilized community councils and were more appropriately geared towards addressing Inuit issues than the poorly managed DGNQ that prioritized modernization and settler culture (Fabbi et al., 2017; Nungak, 2017). Infrastructure development and Inuit contracts with southern companies also increased, bringing greater wealth to the region (Bird & Nixon, 2004). In return, Québec gained access to water systems necessary for their power project and saw the extinguishment of Indigenous claims to the vast majority of the resource-rich territories in the North.

These benefits came at a cost. As Zebedee Nungak notes, settlers in this country have always been entitled to government services like those gained from the JBNQA, whereas Inuit had to “trade the essence of their identity to gain access to public services” (Nungak, 2017, p.

¹³ Now called Kativik Ilisarniliriniq.

79). The agreement resulted in a land regime that divided Nunavik's 444000 square kilometres into three categories. Category I lands are Inuit owned, Category II are provincially owned but with exclusive hunting, fishing, trapping, tourism, and forestry rights for Inuit, and Category III lands are Crown land (table 1.1). Inuit had to relinquish their rights entirely to 85% of the region, where Qallunaat could hunt and fish, and private companies could extract resources without Inuit consent or consultation (Roy-Grégoire, 2013; Wera & Martin, 2008).

Table 1.1: Nunavik land regime¹

	Category I (1% of land)	Category II (14% of land)	Category III (85% of land)
Ownership	Community owner (LHC)	Québec	Québec
	Surface only (LHC)	Surface (Qc)	Surface (Qc)
	Sub-surface (Qc) except soapstone	Sub-surface (Qc), permit at no cost for acquisition of soapstone by beneficiaries	Sub-surface (Qc)
Harvesting and Trapping	Exclusive harvesting rights	Exclusive harvesting rights	No exclusive harvesting rights
	Exclusive trapping rights	Exclusive trapping rights	Exclusive trapping rights
Land use	No mineral obtained or extracted without consent from LHC and compensation payment	Development possible with compensation or land replacement	Development possible
	LHC authorize use and occupation per applicable terms and regimes (construction, development, residential, etc.)	Québec authorizes use and occupation	Québec authorizes use and occupation

¹Adapted from Séguin and Larivière (2011).

The JBNQA contributed significantly to Nunavik's ability to self-govern, despite the limitations imposed by the land regime and their continued status as a region within Québec. Four major authorities came from the JBNQA that are directly relevant to mineral development in Nunavik: Makivik Corporation, KRG, KEQC, and KEAC.¹⁴ The establishment of these organizations provided Nunavimmiut with funded, locally operated organizations to advance their own agenda on the provincial and federal stage. The KRG is a supra-municipal government

¹⁴ Several other governing bodies came from the JBNQA relating to health, education, social, and other services.

with jurisdiction over all of Nunavik¹⁵ and answers only to the Québec government (Rodon, 2018). Makivik Corporation is a land claims organization that represents the interests of Nunavimmiut. It is an ethnic administrative authority responsible for negotiating and signing IBAs, promoting Inuit economic and social interests, and investing compensatory funds from IBAs and the JBNQA on behalf of Nunavik Inuit (Rodon, 2018; Séguin & Larivière, 2011; Wilson, 2017). The KEQC is co-managed by members from Nunavik and Québec. Of the nine members of the KEQC, four members and the chair are appointed by the Québec Government and approved by the KRG and four members are appointed by the KRG, of which two must be Inuit residents of Nunavik. It is responsible for reviewing the environmental and social impacts of proposed projects, setting conditions for developments, and approving or denying projects in Nunavik, although ultimate decision making power lies with provincial authorities for most projects (Jacobs, Berrouard, & Paul, 2009; Rodon, 2018; Séguin & Larivière, 2011). Lastly, the KEAC is a consultative body that works with other government authorities to study, highlight, and make recommendations concerning environmental and social issues important to Nunavik residents (Kativik Environmental Advisory Committee, n.d.).

Each community also has a local-level municipal body referred to as the Northern Village (NV) and a local landholding corporation (LHC) that controls the use and protection of Category I and II lands. These local authorities do not play a direct role in mineral policy or activities unless occurring on Category I or II lands, but both the NVs and LHCs of Salluit, Kangiqsujuaq, and Puvirnituk are signatories of their respective IBAs. Together, these local and regional organizations have contributed significantly to Nunavik's ability to self-govern despite their

¹⁵ There are some areas, Category IA and IB lands, that are intended for the Cree community of Whapmagoostui, which is in Nunavik. The KRG does not have jurisdiction over these areas (Séguin & Larivière, 2011).

existence within the larger provincial government. They were also the first Inuit-centred self-governing bodies in any of Canada's four Inuit regions, leading the way for future Inuit governments (Wilson, 2017).

Interest in development did not stop after the James Bay hydroelectric project was complete. Natural resource exploitation remained a priority for the province, especially as a means to develop its Northern regions. In 2011, the Québec Government released Plan Nord, a 25-year economic agenda that outlines significant investments in energy, mining, forestry, tourism, and conservation in the Northern regions of Québec¹⁶ (Fabbi et al., 2017). This agenda was developed without consultation with the Indigenous peoples whose traditional lands were being discussed, and to many it represented the same colonial approaches to development as the James Bay Hydroelectric project. Plan Nord did present some benefits to Northern residents, like infrastructure improvements and jobs (Scales, 2017), but the positive impacts did not extend far beyond economic opportunities and neglected any planning for social and communities development (Fabbi et al., 2017). It also strictly defines sustainability as protecting 50% of the territory's environment while leaving out any acknowledgement of the social and cultural dimensions of sustainability (Rodon & Schott, 2014). In response to these clear shortcomings, Inuit across Nunavik organized to communicate their dissatisfaction and produce a report in response. This report titled Plan Nunavik, later called Parnasimautik¹⁷, centred Inuit visions for the future that brought to light the important aspects of Inuit life and health that the original Plan Nord neglected (Fabbi et al., 2017). Parnasimautik did not outright reject Plan Nord, but instead asserted the need for careful planning to address the boom-bust cycles inherent in resource

¹⁶ Plan Nord covers more land than just Nunavik. It extends from the 49th parallel to cover 72% of Québec's surface area (Rodon, 2017).

¹⁷ This Inuktitut word translates to "what you need to be prepared" in English.

economics, and to ensure that benefits need to address well-being instead of simply providing job opportunities (Rodon, 2014). Importantly, the report stresses the importance of supporting industries that are not reliant on non-renewable resources and reaffirms the desire and needs for greater autonomy to govern in Nunavik (Makivik Corporation, 2014b; Rodon, 2014).

Parnasimautik was presented to the Plan Nord Ministerial Committee and in 2014 a new version of Plan Nord was announced. It included promises to be respectful of Inuit communities, but many Nunavik residents remain sceptical (Fabbi et al., 2017; Scales, 2017). Currently, government investment remains focused on mining infrastructure (Rodon, 2014). However, like the Raglan Agreement and the JBNQA before it, Parnasimautik demonstrates the ongoing Inuit political action to protect themselves against Qallunaat development priorities. The swift organization and unity that led to the Parnasimautik built on the lessons learned from many decades of Northern resource development. Parnasimautik also made it clear to the provincial government that Nunavimmiut want (and, many would argue, need) greater self-government to prevent the continued imposition of southern priorities onto Northern communities.

1.3.3. Mining History of Nunavik

In addition to the James Bay project, there was a growing interest by private companies in metal and mineral extraction in the region. Mining and politics have always been deeply connected in Nunavik, with each new project affecting future policies, attitudes, and development decisions. Nunavik has been the site of three major mining operations, although a large number of exploration activities also occur throughout Nunavik. These three mines are: Asbestos Hill (1972-1984, owned by Société Asbestos Limitée), Raglan Mine (1997-present, owned by Glencore), and Nunavik Nickel (2012-present, owned by Canadian Royalties).

Asbestos Hill began operations before the modern political landscape of Nunavik existed, most notably the land regime and regional authorities established by the JBNQA and the Mining Act, which requires companies to produce closure plans and provide financial guarantees for remediation.¹⁸ The company was not required to consult with nearby communities or ensure those communities saw benefits (such as preferential hiring, profit sharing, etc.) from the mine other than the wages earned by employees during the mines operations. Weak regulations also allowed the company to transport asbestos with minimal covering (Carney, 2016), and as a result the mine site, Deception Bay (where the company's ships docked) and the area in between became contaminated with asbestos fibres (Carney, 2016; Poirier & Brooke, 2000). Asbestos contamination did not reach the communities themselves, but Inuit working for the mine were exposed to asbestos. Few policies existed for closure and remediation in the 1980s when the mine shut down (Dance, 2015). A 1992 report on the status of Asbestos Hill found that materials were left behind and began to weather and the asbestos contamination was extensive (Roche, 1992). No post-closure monitoring occurred, and tailings, waste rock piles, and an ore dump remained on the abandoned site with minimal remediation (Carney, 2016).

Shortly after the closure of Asbestos Hill, a new company entered the region, Falconbridge Ltd., and proposed a new nickel project approximately 20 km southeast of Asbestos Hill that would become Raglan Mine.¹⁹ Before its development, Falconbridge agreed to do some remediation work on Asbestos Hill, and in exchange the provincial government sold them infrastructure and equipment from the site (Carney, 2016). This remediation work

¹⁸ Although originally adopted in 1987, the Mining act would not require closure plans or financial guarantees until it was amended in 1995. In 2013 it was further refined to require closure plans before the mining lease is given and financial securities that cover 100% of estimated remediation costs (Amos, Audoin, & Lapointe, 2009; Amyot, Paradis, & Gagnon, 2013).

¹⁹ Falconbridge was the original owner of Raglan Mine. Xstrata acquired Falconbridge in 2006, and then in 2013 merged with Glencore, who are now the parent company of Raglan Mine.

continued for seven years but was never completed. Inuit from Salluit and Kangiqsujaq continue to have concerns about contamination and leaching from the site, and its impact on local wildlife and water systems (Carney, 2016). Some also feel that Falconbridge took money from the government for a project that was never finished (Lanari, Smith, & Okituk, 1999). Today, minimal additional clean-up has occurred and the tailings pile that was left appears to be eroding (Interview #6). In 2019, the provincial government finally took responsibility and added Asbestos Hill to its list of abandoned mines targeted for remediation.

Asbestos Hill quickly became the example of what Nunavimmiut do *not* want to happen with future mine sites in Nunavik. In the 1990s, when Falconbridge was moving forward with the planning and development of Raglan Mine, community members had a greater understanding of what they should require from mine companies as well as experience in organizing to resist and influence development projects in Nunavik. The company, too, understood that Inuit had a negative perception of the industry because of Asbestos Hill. While Raglan Mine would be developed on Category III lands and therefore did not legally require Inuit consultation or compensation, the company was incentivized to work with Inuit communities and regional authorities to build strong, positive relationships so the Raglan Mine project could move ahead unimpeded (Dufresne, 1996). As a result, Falconbridge went through an extensive consultation process with Salluit, Kangiqsujaq, and Makivik to come to a mutually beneficial agreement that would facilitate development and see benefits and protections for Inuit (Roy-Grégoire, 2013). The consultations leading up to the IBA were in addition to the consultation requirements for an ESIA. The result was the first IBA between a mine company and Indigenous community in Canada, named the Raglan Agreement and signed in 1995 between the company, the Landholding Corporations and Northern Villages of Salluit and Kangiqsujaq, and Makivik. The

agreement included protections for sacred sites (identified by Makivik and KRG), employment and training opportunities and preferential hiring, Inuit-focused human resource strategies, literacy programs for communities, and requirements for the company to exceed Québec's minimal environmental regulations (Bird & Nixon, 2004; Séguin & Larivière, 2011). Additionally, 4.5% of the mine's profits go to the Salluit, Kangiqsujuaq, and Makivik (Rodon, 2018).

Like the JBNQA, the Raglan Agreement further contributed to Nunavimmiut self-governance. The IBA created formal structures for Inuit to participate in decision-making for the mine. The Raglan Committee, for example, has members from the company and both community signatories who meet multiple times each year to discuss operations and collaboratively address challenges (Bird & Nixon, 2004). Equally important, though, was the precedent that was set by the Raglan Agreement. Canadian Royalties²⁰ began planning for the development of the Nunavik Nickel mine in the early 2000s and, like Raglan Mine, had no legal requirements to consult with Nunavimmiut because the site would be located on Category III lands. The company followed the same path as Raglan Mine, however, and signed an IBA with Makivik and the Landholding Corporations of Salluit, Kangiqsujuaq, and Puvirnituq. The Nunavik Nickel Agreement also contains provisions for preferential hiring of Inuit, preferential contracting for local businesses, training programs, and profit sharing between the three communities and Makivik (Séguin & Larivière, 2011). The agreement was signed in 2008 and in 2012 Nunavik Nickel began operations.

²⁰ Canadian Royalties is the owner/operator of the Nunavik Nickel mine. Its parent company is Jilien Jien Nickel Industry Co.

1.4. Methods and Ethics in Northern Research

Academic research, and especially the field of Geography, is rooted in European imperialism and has been used intentionally as a tool for settler colonialism and the dispossession of land from Indigenous peoples. As Castleden et al. (2012) explain, “British common law designated much of the Canadian landscape as *terra nullius*, or empty lands, creating the necessary legal conditions for Indigenous communities to be forcefully excluded and marginalized from their traditional territories” (p. 161). Map-making confined Indigenous peoples and delegitimized their claims to traditional lands, health research used Indigenous peoples as subjects of experiment without their consent, and social science represented Indigenous cultures as being primitive, less than human, and relegated to the past (Brealey, 1995; Castleden et al., 2012; Coombes, Johnson, & Howitt, 2014). Academic research has also been conceptualized within a Western research paradigm that values claims of objectivity, separates humans from nature, and positions the researcher as the knowledge holder and Indigenous peoples as passive subjects of research (Battiste, 2014; Emilie Cameron, 2012; Koster, Baccar, & Lemelin, 2012). Research methods often reflect colonial systems and institutions that are oppressive to the Indigenous communities that many geographers wish to do research with/for/on (Coombes et al., 2014). In Northern Canada, small communities have long struggled with the burden of frequently hosting southern researchers, who consume limited resources and often come and go with minimal or no consultation with the community and without producing useful outcomes for them (Barker, 2017; Inuit Tapiriit Kanatami, 2018; Moffitt, Chetwynd, & Todd, 2015). Substantial social and economic inequities exist between Inuit and the research community, and countless researchers have built their careers off Indigenous subjects while producing few positive outcomes for communities that improve their material conditions

(Brunet, Hickey, & Humphries, 2016; Castleden et al., 2012; Inuit Tapiriit Kanatami, 2018).

Research that does not critically reflect on these failures risks reproducing them and thus reproducing colonial relations and power structures.

As a non-Indigenous, southern Canadian I have spent most of my life with no social or cultural connections to northern Canada. As a youth growing up and attending grade school in a southern, predominantly white community I learned little about the histories and unique experiences of northern Indigenous peoples. I am an outsider to the North. I have lived most of my life in southern British Columbia where I developed an interest in learning about the issues facing Indigenous peoples through my undergraduate studies, but my ability to truly understand these issues has and will always be limited by my own background. Additionally, I am a researcher working within a system that has historically harmed many Indigenous peoples through unethical experimentation and misrepresentation. In reflecting on her own work in the North, Zoe Todd succinctly captures the feelings that I have as outsider and researcher, explaining that “[the North] is not my home, and I was not raised in its laws, lands, and stories. I am, and always will be, a visitor to Northern places, and I must be aware of the reciprocal duties I hold to Northern nations, laws, and governance” (Moffitt et al., 2015). It is my responsibility to carry the knowledge and implications of my own positionality and the shortcomings of the academy with me as I conduct research, and constantly reflect on the power that I wield as a researcher and mitigate potential harms as much as possible.

While the purpose of this research was not to access information about IK or culture from Inuit communities, it does centre issues faced by Inuit and involved a partnership with Nunavik Inuit. The design of this research incorporates Indigenous and community-based participatory research (CBPR) methods. This kind of research works to shift power from the researcher to the

community and has emerged as a means of mitigating harm and producing research and relationships that are respectful, appropriate, and reciprocal. This shift from researcher-as-expert to community partnership and ownership has occurred largely due to the efforts of Indigenous peoples to regain control over their land, knowledge, cultures, and histories (Brunet et al., 2016). Wilson (2008) describes Indigenous research methodologies as being relational (within and between humans and non-humans) and emphasizes the need for research to be accountable to relationships above other metrics commonly used in academic work. Wilson explains, “right or wrong; validity; statistically significant; worthy or unworthy: value judgements lose their meaning. What is more important and meaningful is fulfilling a role and obligations in the research relationship” (p. 77). Bull describes the importance of developing authentic relationships, which requires researchers to actively reflect on the power that researchers wield and employ methods that return that power to Indigenous communities to promote community ownership, access, and control of information (Bull, 2010). In Fletcher et al.’s discussion of authentic relationships in research, they stress reciprocity as a key component of ethical research with communities (Fletcher, Hibbert, Hammer, & Labouceur, 2016). Specifically, they describe reciprocal capacity building, which involves co-learning and benefits for both researcher and community (Fletcher et al., 2016).

Community based research aims to develop questions, priorities, methods, and outcomes with communities to produce mutual benefits; often this involves early engagement and answering questions that the community already has as opposed to questions that come from academic literature (Brunet et al., 2016; Castleden et al., 2012; Saxinger & First Nation of Na-Cho Nyäk Dun, 2018; Tondur et al., 2014). The goals of community-based methodologies are to engage in reciprocal research, develop culturally appropriate methods, and honour the process of

doing research as much as the products that research may lead to (Shiu-Thornton, 2003). Here, research is judged more so on how communities are engaged with, their ability to influence the research process, and the contributions that research makes to community capacity building and social/political change, and less so on immediate research outputs and publications (Coombes et al., 2014; Pain & Francis, 2003). Just as I will argue throughout this thesis that Inuit must be involved in the process of planning for mine closure, it is also critical to give over control of the research planning process to the communities most impacted by my research to ensure they get value from it.

1.4.1. The Raglan Mine Closure Plan Sub-committee

This research emerged from an existing relationship between the Raglan closure sub-committee, the Towards Environmentally Responsible Resource Extraction Network (TERRE-NET, which facilitates mine remediation research and funded this work), and my supervisor (Dr. Arn Keeling) who is a member of both TERRE-NET and the closure sub-committee. One of the sub-committee's goals established at their first meeting in 2018 is to increase members' expertise in mine closure and remediation, and I was invited to attend these meetings as a guest and student to contribute to this goal through my research activities.

I attended closure sub-committee meetings from December 2018-July 2020,²¹ where my role as a researcher was to develop and execute a research plan in consultation with sub-committee members that would address questions they had about mine closure. My primary objective was to ensure that my research was not simply done for the sake of filling academic gaps or observing novel closure planning strategies, but that my work benefited the closure sub-

²¹ These are usually two to three day in-person meetings in Montreal, Québec City, or at the Raglan Mine site. However, the February and August 2020 meetings were held remotely due to the travel restrictions related to COVID-19.

committee, the communities of Salluit and Kangiqsujaq, and the region of Nunavik in practical, demonstrable ways.

In October 2018, I was introduced to some of the closure sub-committee members via conference call, during which we discussed possible research directions. In December 2018, I attended a closure sub-committee meeting and was formally introduced to all members. We again discussed possible research directions, and the input received was used to develop a research proposal that was then presented at the following meeting in February 2019, which received approval from the sub-committee.

The initial discussion in 2018 focused on community workshops as a main method for my research, but it was explained to me by Inuit representatives that the communities were not ready to host more researchers. While all members were supportive of more research being done to facilitate their work, they explained that they host many researchers each year and it becomes a burden for these small communities. They cited limited housing resources, research fatigue, and the unequal benefits for Inuit who assist in research as reasons for being hesitant to welcome more researchers into their community. Based on this feedback, it was agreed that my work should occur outside of the communities and focus on the larger-scale government and industry practices instead of requesting participation and knowledge from community members.

This shift in focus to industry and government inquiry allowed me to support a broader effort to build local capacity around mine remediation, rather than drawing on community resources. Investigating industry practices would provide insight into what other companies operating in the North are doing to address community engagement and the inclusion of socio-economic factors in mine closure. This was of particular importance to sub-committee members, as the lack of imagination and engagement in closure planning has come up several times across

multiple meetings. The current closure plan for Raglan Mine is primarily an engineering document, and so it was sometimes difficult for sub-committee members to envision what this closure plan could look like with community input. Questions such as ‘where would community knowledge go’ and ‘what community knowledge is relevant to mine closure’ were raised several times with no clear answer given. Across Northern jurisdictions and between individual companies there are different requirements, agreements, practices, and philosophies for involving communities in closure planning. By collecting other mine closure plans it is possible to provide the sub-committee with a sense of what other engagement practices exist, and how other companies and communities have answered these kinds of questions. Regardless of whether the examples are objectively good or bad, they contribute to a greater understanding of what is possible.

Once this new research approach was approved by the sub-committee, I moved forward with the data collection phase of the research and continued to attend closure sub-committee meetings. My attendance at subsequent meetings (December 2019, February 2020, and July 2020, plus additional conference calls in between) was an opportunity to engage in ongoing conversation with the Inuit parties of the sub-committee to make sure that my work continued moving in a direction that suited their needs. I received guidance and could adjust my activities when necessary. We also discussed the best methods for communicating my results, both to the sub-committee and the communities. To further contribute to the sub-committee, I also provided some administrative assistance. I served as note taker during meetings, compiled meeting minutes, kept their file storage system up to date, and kept track of actions that needed completing. As part of a MITACS Accelerate internship, I completed additional report writing for the closure sub-committee from November 2019-January 2020.

While the ethics that underpin this research come from Indigenous and community-based research methodologies, the work I did does not look like standard community-based research. It did not take place within communities or with an Indigenous organization;²² rather, it only involved residents of Nunavik who are members of the sub-committee, and there was minimal travel to the North. The design of this work reflected an act of refusal by the Inuit parties of the closure sub-committee based on the knowledge they have about their own communities. Tuck and Yang (2014) describe refusal not as simply saying no, but shifting to questions or ideas that have not yet been acknowledged. It is an act of agency that takes the focus and pressure off of individuals who are marginalized, oppressed, or lacking power (Tuck & Yang, 2014; Zahara, 2016). Involving communities in every stage of research can be labour intensive, and there may not be room to shift human capacity and resources into a research project, in which case the best thing to do may be for the researcher to step away from the community and the ideals promoted by institutional research ethics boards (Desbiens, 2010; Koster et al., 2012).

In addition, research that sought interviews from residents of Salluit and Kangiqsujaq with regard to their values and priorities for mine closure had previously been conducted in 2018 by another TERRE-NET student working with the closure sub-committee. Instead of returning to the communities to do additional interviews and workshops with residents, it made more sense to address the remaining need for information about closure governance and industry practices. Ethical and appropriate research, in this case, manifested as community oversight and approval, but not direct involvement or participation in data collection. Instead, I chose to ‘study up’ and focus my attention on systems, structures, and power relations (Becker & Aiello, 2013; Zahara,

²² While the closure sub-committee has Inuit representatives, it is not an Inuit organization. It is a private partnership between Salluit, Kangiqsujaq, Makivik, and Raglan Mine.

2016), and collect data from the plethora of information that exists in grey literature and with experts who do not necessarily live in the communities. Through such a strategy, research needs can be met by engaging with those in power and critical knowledge can be gained from a distance.

1.4.2. Research Methods

This research used qualitative methods, including participant observation, document analysis, and semi-structured interviews. Document analysis involved the comparison of ten closure plans from mines operating in Northern Canada. During closure sub-committee meetings, members expressed on multiple occasions that they have difficulty imagining how community knowledge could be incorporated into a closure plan, or if a closure plan is the right place for community knowledge and less technical, scientific topics at all. Practices and knowledge about community engagement in closure planning vary widely between companies and locations, and consultants hired for developing closure plans typically specialize in engineering and physical mine remediation, not community engagement and IK. Therefore, it was agreed during the February 2019 sub-committee meeting that it would be helpful to compare mine closure plans from multiple sites to learn from their successes, challenges, and shortcomings. Those lessons can then inform the ongoing review and development of Raglan Mine's next closure plan. Additionally, semi-structured interviews with government and industry actors in Nunavik and an examination of policy documents was agreed upon to contribute to the sub-committee's knowledge about the systems and regulations governing mine closure in Nunavik. The results are meant to contribute to the expertise of the closure sub-committee and assist in the closure planning process for Raglan Mine. Greater detail about these methods is provided in chapters three and four.

Participant observation supplemented my knowledge about the mining environment in Nunavik. This aspect of my research methods contributed to my own understanding of the relationships and attitudes relating to the mining industry in Nunavik. Participant observation allows a researcher to be directly involved in the activities of a particular group of people and provides valuable insight into how those activities are executed and why they occur, especially in cases (like the unique work of the sub-committee) where the task being observed is not well-known and typically not observed by outsiders (Guest, Namey, & Mitchell, 2017; Jorgensen, 1989). Actively participating in the activities of a group produces tacit knowledge, a type of knowing that is difficult to communicate verbally or in writing and is therefore challenging to access through other research methods like formal interviews or surveys (DeWalt & DeWalt, 2010). This tacit knowledge about a group can act as data in its own right but can also inform other research activities and ensure the accuracy and effectiveness of other methods being used and questions being asked. It allows for a more nuanced and contextual understanding of how mine closure and remediation practices happen on the ground.

In addition to the closure sub-committee meetings (December 2018, February 2019, December 2019, and July 2020) I attended the Nunavik Mining Workshop in April/May 2019.²³ The Nunavik Mining Workshop is an annual event held in Kuujuaq that gathers local and regional authorities, community members, and representatives from mining and mine exploration companies active in the region. This event is meant to bring different parties together to discuss activities in the region, focusing on industry actors giving updates about their current and anticipated future projects. Employees from provincial and federal governments and university

²³ I had originally planned to attend this workshop again in 2020 to present my research findings, meet with participants again, and validate results. Unfortunately, due to the widespread shutdowns associated with COVID-19, the 2020 Nunavik Mining Workshop was cancelled. Results will still be provided to research participants and relevant authorities, but another method will be chosen that does not require in-person contact.

researchers may also present information on relevant projects. I attended as a researcher and presented my research proposal. I also used this event and my two-week stay in Kuujuaq to meet industry and government representatives, learn about the mining context in Nunavik, and recruit interview participants. Some of my time was dedicated to conducting formal interviews, but much of the time was spent having informal conversations with people working in Nunavik who shared valuable information about the nuances of governance in the region. I did not record any of these events other than with hand-written notes, and quotations by any attendees or presenters are not included in this thesis. Names of most closure sub-committee members and Nunavik Mining Workshop presenters and attendees are publicly available, but they are not included in this thesis.

1.5. Thesis Overview

This research examines how mine closure is being planned for across Northern Canada and in Nunavik, Québec, focusing on the socio-economic aspects of closure and how Indigenous communities are being included in this process. The remainder of the thesis is separated into four chapters. In Chapter Two, I present a critical literature review and context for my research. I discuss the varied impacts that small and remote communities have experienced when a nearby mine closes, including those related to environmental change, social disruption, and economic decline. I then discuss the unique ways that Indigenous peoples in Northern Canada have experienced mine closure, which can negatively impact traditional land-based economies, social organization, and cultural reproduction. As will be discussed in Chapter Two, understandings of closure and remediation differ between scientists, companies, governments, and communities, but not all understandings and knowledge are given the same weight. Scientists and engineers are sought out for their expertise, while TK is tokenized, and community input is confined to

describing the natural environment. Because of the varied perspectives on closure and unequal power relations, community engagement and direct involvement in closure planning is critical. While few examples of community engaged closure planning exist, this chapter will discuss community engagement with Indigenous peoples broadly, why it is so important, the challenges that exist, and the benefits it can lead to if done well. Community engagement can ensure that a wider scope of issues is addressed in closure planning, but only if practitioners can overcome those challenges.

Chapter Three uses a detailed document analysis of mine closure plans to examine closure planning strategies for mines operating in Northern Canada. More specifically, this chapter details the overlapping and diverging contents of ten closure plans from across the North, describing how each mine site is engaging with nearby Indigenous communities, incorporating their knowledge and concerns into the closure plan, and accounting for the socio-economic impacts of mine closure. Overall, these closure plans do not effectively describe how they are currently or have in the past engaged with communities, and it is unclear how engagement has led to practical changes in the closure plan. Socio-economic impacts are largely absent from these documents, despite the purpose of a closure plan being to explain how the company will mitigate risks to humans and the environment. Where socio-economic impacts are discussed, they may not be related to closure and remediation, or are deemed not significant, thus requiring no mitigation. There are differences between territorial and provincial closure plans, which are in part explained by differences in closure regulations between jurisdictions. However, even within the same territory there are substantial differences between closure plans from different companies, so company practices are also a factor in explaining the differences between companies.

In Chapter Four, I focus my analysis on Nunavik, using interviews with government employees and mine executives, and an examination of provincial and regional policy and guidance documents. This chapter explains how mine closure is governed in Nunavik, what knowledge influences closure governance and decision making, and what gaps exist that may limit the scope of issues being addressed and how effectively and consistently Inuit are able to participate in closure planning. I argue that provincial regulations do not adequately account for the socio-economic aspects of closure and are not explicit enough in their requirements for community engaged closure planning. Regional-level authorities have little influence over mine closure, which tends to be limited to front-end processes, like IBA negotiations and ESIAs. Few mechanisms exist to ensure the same level of regional and local government involvement later in a mine's life. Interview participants expressed confidence in the KEQC's role in impact assessments and closure plan reviews, as well as in newer regulations like financial security requirements. Furthermore, they explained past failures, like Asbestos Hill, as being the result of regulatory failures that have since been corrected. However, the closure plans for the two operating mines in Nunavik do little to engage with Inuit Qaujimajatuqangit²⁴ (IQ) or address socio-economic impacts, and closure policies and guidelines focus almost exclusively on physical remediation at the neglect of social, economic, and cultural aspects of closure. The Raglan closure sub-committee has a strong potential to fill many of the gaps left by government, but other companies are not being held to these same standards.

Finally, Chapter Five summarizes and connects the findings of this research to demonstrate that, despite the growing recognition of important socio-economic impacts of mine closure and the existence of international and national guidelines for social and community

²⁴ Inuit traditional knowledge, institutions, and technology

engaged mine closure, planning practices and governance still have many gaps that must be filled to produce better outcomes for Northern communities. Across the North, community engagement strategies are vague, and the socio-economic aspects of closure often go unacknowledged in closure plans and government regulations. Good examples of closure planning practices do exist: companies operating in the Northwest Territories appear to be putting effort in to engage community knowledge in closure planning, and the Raglan closure sub-committee has created a direct and consistent avenue for communities to be involved in the closure of Raglan Mine. While these strategies can influence other companies' practices, the absence of clear and detailed guidelines from regulatory authorities means that it is left to private interests to decide whether or not, and to what degree, they wish to be good corporate citizens. For mine closure to be successful in a Northern context and to meet Inuit needs and visions of their future, it must incorporate Inuit knowledge and emerge from Inuit values and priorities. In Nunavik and in the North more broadly it does not appear that industry or government are guaranteeing this inclusion, despite all the claims made by both public and private actors on how closure planning has been improved.

1.6. Co-authorship Statement

Chapter Three is co-authored by Dr. Arn Keeling and myself (Miranda Monosky) and was accepted for publication in the Journal of Environmental Management in August 2020. The research design was co-designed by both authors, and I was responsible for data collection and analysis with guidance from Dr. Keeling. I wrote the drafts of this chapter and Dr. Keeling provided revisions and approved the final manuscript for publication. The thesis version differs from the publication in some minor ways: the introduction and literature review was removed

from the thesis version to avoid repetition from other chapters, and the results and discussion were expanded on to include greater detail than what was submitted for publication.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

To fully understand mine closure and remediation in northern Canada, the social, economic and cultural impacts to northern and Indigenous residents must be considered and put into a larger historical context that accounts for the ways that settler colonialism and environmental injustice has shaped, and continues to shape, northern environments and relationships. This literature review will do this by explaining the many definitions and perspectives on mine closure, paying particular attention to northern and Indigenous experiences and the nuanced and ever-evolving relationships between Indigenous peoples, government, and the mine industry. It will also identify gaps in this literature to highlight how this research contributes to mine closure scholarship.

I will begin by tracing a synopsis of the ways in which mining and settler colonialism are inseparable in Canada. I will then provide an overview of the many possible environmental, social, and economic impacts of mine closure, as well as the particular impacts experienced by Indigenous peoples in Canada. Many Indigenous communities have collectively engaged with the mining industry to both resist (to protect their lands and peoples) and utilize (to benefit and improve their quality of life) new mining projects. A clear understanding of the myriad human impacts felt by mine closure is essential for framing the results discussed in Chapter Three, which explores whether or not and how the industry is accounting for these kinds of issues. Lastly, I will explore the kinds of relationships that exist between communities and industry, and the negotiations and formal agreements that come from these relationships. I account for the different challenges and opportunities that exist for community-engaged mine closure planning, and how mine closure planning could unfold in the future with the right resources and support

for northern and Indigenous communities. This latter section will provide the background necessary for Chapter Four, which explores how different levels of government in Nunavik, Québec are facilitating the involvement of Inuit communities in mine closure planning.

2.2. Mining and Settler Colonialism

In Canada, mineral extraction and settler colonialism are inextricably linked, with the former being a tool to facilitate the removal of Indigenous peoples from their land and assimilate Indigenous peoples into modern, western society. As discussed in the Chapter One, mining was also an important means of generating wealth for Canada's settler population. As a result, mining largely fueled the government's motivation to settle Indigenous land claims in order to remove uncertainty about land and resource use and attract development. Once the financial possibilities of northern mineral extraction became apparent, Canada quickly began negotiating Aboriginal rights and drafting land claims policies and agreements with northern Indigenous groups (Mitchell, 1996). In the press release formally announcing the signing of the Nunavut agreement explicitly states that the agreement will "enhance the climate in the territories for economic and political development by removing legal uncertainty on use and disposition of land and resource in the eastern NWT" (Mitchell, 1996, p. 360). The James Bay and Northern Quebec Agreement, Mackenzie Valley Pipeline Project and later Mackenzie Gas Project in the NWT, and the Voisey's Bay Mine in Labrador all facilitated the completion of land claims agreements with their respective Indigenous groups (Rodon, 2018). In doing so, the state aimed to establish clear rules and procedures for resource development in the North while simultaneously making northern Indigenous peoples into shareholders who had a stake in that development, as opposed to rightsholders with inherent rights to the land and its resources (Mitchell, 1996).

During this phase of land claim settlements, the federal government “focused on claims in which resource development was imminent” (Rodon, 2018, p. 122). They also dealt only with Indigenous groups that were deemed reasonable and who accepted the parameters of the Canadian Land Claims Policy (Rodon, 2018), therefore excluding those who were considered by the government to be too difficult to work with. Since 1973, Canada has settled 26 comprehensive land claims agreements (Hodgkins, 2018). From Canada’s perspective, the goal of settling land claims has been to facilitate the separation of Indigenous peoples from their land, land-based economies, and relationships with their traditional territories (Mitchell, 1996). However, it is also important to note that many Indigenous groups see those land claims and the negotiations that lead to them as being a significant act of self-determination (Hodgkins, 2018).

Settler colonial states depend on the dispossession of lands from Indigenous peoples to both make room for a new settler population and to exploit those lands to produce capital for that population (Tuck & Yang, 2012). In Canada, this often required forcibly relocating Indigenous peoples to marginal reserve lands, but has also taken shape as other traumatic forms of social, cultural, and spiritual colonization have sought to place Indigenous peoples in subjugated positions within society (Barker, 2009). This included: the widespread placement of Indigenous children into residential schools and foster homes; the systematic control of Indigenous peoples through educational and judicial systems; the transformation of traditional economies through the introduction of wage labour; and the resulting intergenerational separation between elders and youth that limits the transmission of culturally important knowledge (Ford, Smit, & Wandel, 2006; Tuck & Yang, 2012). As Cameron (2011) eloquently explains, the Arctic has been “shaped by histories of imperialism and colonialism, by the racializations elaborated in Canadian settler societies, by historical and contemporary flows of capital and resources, by state and

missionary activities in the region, and by Inuit and other Indigenous political movements” (p. 170).

The plethora of abandoned pits, tailings impoundments, and contaminated soils and streams from mineral extraction is one of these socio-material manifestations of settler colonialism in Canada, materially embedded in the landscape. As stated earlier, resource development was a tool explicitly used by the state to bring modern, Euro-centric development to the North to colonize and ‘develop’ the region (Boutet et al., 2015; Keeling & Sandlos, 2009; Loo, 2017; Rodon & Lévesque, 2015). It was a means by which the state could radically change the social and economic makeup of Indigenous societies to suit the needs of a foreign government (Keeling & Sandlos, 2016). In doing so, traditional lands were degraded, and Indigenous peoples were marginalized while creating a steady flow of valuable resources from the North to the south to benefit settlers.

The dispossession, exploitation, and degradation of traditional lands continue to have pronounced social, cultural, and economic impacts on Indigenous peoples who maintain important human-environment relationships and engage in land-based subsistence activities. Sandlos and Keeling (2016d) explain that, while both settlers and Indigenous peoples experience risk associated with post-mining pollution, Indigenous peoples experience additional risk due to the integral role that land and water plays in their subsistence economies. The environmental footprint of mining and the landscape changes and contamination that so often come with it can undermine and marginalize the economic systems of affected communities. In addition to contributing to community economies, the natural environment plays important social and cultural roles in many Indigenous communities. For Inuit specifically, the land, all of its human and non-human inhabitants, and the traditional activities that occur there are critical components

of culture, identity, and social organization (Richmond, 2009; Scott, 2001; Todd, 2014; Willox et al., 2012). To degrade Inuit territory via resource extraction is to degrade important place-based connections that form the basis of Inuit identity. Thus, not only is the physical landscape changed in this context, but social and cultural landscapes are also altered in dramatic ways, representing larger issues of injustice, dispossession, and settler colonialism (Bainton & Holcombe, 2018; Cohen, 2017; Keeling & Sandlos, 2009).

2.3. Mine Closure and Remediation: Environment, Society, and Dispossession

While there has been considerable scholarly focus on the impacts of mineral development on Indigenous lands and communities, researchers have devoted less attention to mine closure, remediation, and post-mining legacies. Mine closure refers to the phase of a mine's lifecycle that occurs after mine operations have ceased and the site is no longer viable, and all of the actions necessary for decommissioning that site (International Council on Mining & Metals, 2019a). Within mine closure is remediation, or the environmental clean-up and mitigation of negative impacts or potential harm – rehabilitation and reclamation are also used in North America in varying contexts, although these latter two tend to imply the return to some predetermined value or pre-mining state (Beckett & Keeling, 2019; International Council on Mining & Metals, 2019a). Mine closure and remediation include all the methods for physically cleaning up a site (removing infrastructure, filling pits, containing, and stabilizing waste), the planning required before closure occurs, post-closure monitoring, and progressive reclamation.²⁵

²⁵ Progressive reclamation or progressive closure refers to the closure and remediation activities that occur while a mine is still operational. Mine sites typically have multiple pits and underground tunnels that may be depleted at different time, and thus one pit may be decommissioned while the overall mine site remains operational. Progressive reclamation is usually required by government and is recommended by international best practice guidelines to ensure final closure is efficient and complete (International Council on Mining & Metals, 2019b).

Historically, mine closure was an afterthought for the industry and governments. While the development of a mine elicits excitement for communities and governments looking forward to new economic possibilities, the closure of a mine is not met with the same enthusiasm; as Laurence (2006) states, “reputations are rarely built by closing a mine” (p. 285). Mine closure was typically limited to placing barriers over pit openings, fencing off areas of potential concern, containing waste, and removing surface infrastructure and equipment, and companies were minimally penalized for not complying to these lax regulations (Mackasey, 2000). The volatility of mineral markets, natural boom-bust cycles of the industry, and unexpected adverse political and environmental conditions routinely cause closure to happen abruptly and sometimes result in the wholesale abandonment of a site by bankrupt companies (Laurence, 2006; Sandlos & Keeling, 2016a). The result has been a plethora of abandoned and poorly remediated mine sites across the country that eventually become the responsibility of federal, provincial, and territorial governments (Mackasey, 2000).

Generally, mine closure and remediation are governed by provincial and territorial governments, although Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has developed many of the territorial resources Acts (Castrilli, 2005). Prior to 2003 (YK) and 2014 (NWT), the federal government was responsible for this in the territorial North, although with the trend towards territorial devolution, Yukon, NWT, and Nunavut have become increasingly responsible for the management of their natural resources (Dance, 2015). In the last couple of decades provincial and territorial governments have developed more robust regulatory regimes with stricter environmental protections to ensure safe and stable post-closure landscapes. It is now widely understood that in order to avoid the creation of new hazardous abandoned mine sites, proponents need to begin planning for closure at the design phase of a mine’s life

(Tremblay & Hogan, 2016), and mine closure is accepted as being as important as construction and operations in the sustainability of individual site, the mine industry, and impacted communities/regions (Laurence, 2006). Provincial governments, like the governments of many other countries, now also require the early development and regular update of mine closure plans, as well as financial assurances to be used if the company becomes unable to meet its responsibilities (Cowan, Mackasey, & Robertson, 2010; Hart & Hoogeveen, 2012; Kabir et al., 2015). The specific year when each province began implementing these policies varies, but Québec, for example, began requiring that mine companies pay financial securities for remediation in 1995. Since the 2000s Canadian and international best practice guidelines for closure have also been developed that emphasize the importance of beginning mine closure and community engagement early in the mines life and anticipating sudden and unplanned closure (International Council on Mining & Metals, 2019b; Mining Association of Canada, 2008), although how effectively the industry follows these recommendations is questionable.

The industry has also dramatically improved its ability to effectively remediate post-mining landscapes, although the scope of issues being addressed is still often too limited. While the importance of mine closure and remediation with regard to environmental quality and sustainability have been acknowledged, what is less widely recognized and acted upon is the wide ranging, complex, and interconnected impacts mine closure can have on social, economic, and cultural landscapes (Bainton & Holcombe, 2018). Stacey et al. (2010) describe the socio-economic aspects of mine closure as being a subject that “is complex and high risk, requires engagement over years, delivers few quick-wins, and requires cooperation and understanding between internally and externally heterogeneous groups of people” (p. 4). They also explain, though, that it is under-researched and underestimated by the industry.

Mine closure is not a discrete event or a process with a clear start and end date. From an industry perspective, mine closure is complete when the government allows a company to relinquish the site and walk away without any remaining legal obligations. Typically, this occurs after several years of post-closure environmental monitoring to ensure that the remediated site is safe and stable. But from a critical academic perspective, and the perspective of many communities impacted by mineral development, a mine site is never truly closed. In Bainton and Holcombe's (2018) words, "while the end of production typically represents a significant moment in the life of a project, mine closure encompasses more than the decommissioning of the processing plant, or the physical rehabilitation of the mine site" (p. 469). Mine waste will remain on site perpetually and landscape changes will likely never be completely restored to their pre-mining conditions (Bridge, 2004; Hudson-Edwards et al., 2011; Kossoff et al., 2014; Lottermoser, 2007). Across Canada there is a general lack of regulations for dealing with the long-term care that is so often required for decades or even centuries after a mine closes (Dance, 2015). The presence of a former mine will continue to impact not only the environment, but also people in ways that will last long after the company has left the region (Burns & Church, 2018). Additionally, past mine sites can remain economically and scientifically valuable to companies, governments, and researchers, and the memories of mine sites often shape perceptions of future (re)developments and land uses (Cater & Keeling, 2013; LeClerc & Keeling, 2015; Midgley, 2015). The United Keno Hill Mine in Yukon, for example, operated between 1913 and 1989 before mineral prices dropped, at which point the site was abandoned and remediation was left to the government (Fox, 2019). In 2006 Alexco Resource Corporation took over the mineral rights and, as part of an arrangement with the Yukon government, was made responsible for a portion of the previous site's care and maintenance and eventually remediation (Alexco Resource Corp,

2020; Fox, 2019). Even defunct sites can remain economically valuable enough for companies to take on responsibility for the remediation of another company's site.

2.3.1. Environmental Aspects of Mine Closure

Mineral development causes substantial environmental changes that are challenging and sometimes impossible to reverse or stabilize. Mining requires the movement of incredible amounts of earth – more than any natural earthmoving process – and in doing so modifies local drainage systems, topography, and vegetation (Bridge, 2004). Mines also require massive amounts of energy and infrastructure to operate. Hydroelectric dams and natural gas infrastructure are common developments that occur alongside mines, increasing the overall footprint of the site and competition between the mine and other land uses (Bebbington, Hinojosa, Bebbington, Burneo, & Warnars, 2008). Old buildings, mining equipment, ore processing facilities, and unmaintained roads may be left behind and impact the ability of fish and animals to move through their natural environments, which can in turn have negative impacts on the local population's ability to hunt and trap (Keeling & Sandlos, 2017). Closed and abandoned mines may also be sites of soil loss, changed groundwater regimes and vegetation, and landscape subsidence (United Nations Environmental Programme, 2001).

Mining generates an incredible amount of waste that can cause chemical pollution and is particularly hazardous and challenging to manage. Mining activities remove materials from underground environments which, when exposed to surficial conditions, can breakdown, oxidize, and release elements that the receiving environment may not be able to absorb or process (Franks et al., 2011). The accumulation of these contaminants can pose serious risks to terrestrial and aquatic ecosystems and the humans who depend on them (Hudson-Edwards et al., 2011; Kossoff et al., 2014). Metal mining produces especially hazardous wastes due to the ore's geochemistry,

chemicals used for extraction and processing, and the exceptionally large quantities of unused waste materials left behind (Bridge, 2004). There is typically no market for the less valuable, rejected materials, which on average accounts for >98% of mined materials (Ripley et al., 1996).

Mine waste can generate both surface and sub-surface contamination on the site itself, as well as secondary areas of contamination caused by the flow of water and air through the site and into other environments (Emili, Pizarchik, & Mahan, 2016). Waste rock, the earth material extracted from the ground to access valuable ore, is often either stored on the surface in dump sites or put back into open pits and tunnels to reduce the footprint of the mine site (Franks et al., 2011; Hudson-Edwards et al., 2011). This waste rock is susceptible to erosion and can release hazardous materials into the environment (Franks et al., 2011). Tailings, the waste created through ore processing, can contain xanthate and cyanide, or other processed chemicals (Hudson-Edwards et al., 2011; Kossoff et al., 2014). Liquid tailings are stored in man-made dams or dried and left on the surface. Tailings impoundments have high failure rates and release pollutants such as arsenic, cadmium, copper lead, and zinc into the environment, while dewatered “dry stack” piles are susceptible to oxidization and erosion like waste rock (Bridge, 2004; Davies, 2002; Franks et al., 2011; Kossoff et al., 2014; Mining Minerals and Sustainable Development, 2002). Toxic acid mine drainage and reagents used for processing are found in waterways all over the world, including headwaters used for rural and urban water supplies and desert areas where water is brought in from elsewhere for mine operations (Bebbington et al., 2008; Mackasey, 2000).

The remediation of mine sites is also complex, time consuming, and expensive. Contamination can reach areas far beyond the mine site, and dealing with mine waste often requires permanent infrastructure that is among some of the largest industrial structures ever

built (e.g. tailings impoundments that can cover thousands of hectares; Emili et al., 2016; Mining Minerals and Sustainable Development (MMSD), 2002). Often all that can be done for sites of contamination is monitoring and management to reduce damage as much as possible. Reversing or completely eliminating the problem is often impossible and post-mining landscapes will never return to their true pre-mining state (Lottermoser, 2007). Furthermore, remediation itself can cause new problems for mine sites. As Sandlos and Keeling (2013) point out, toxic materials found in contaminated soil must go somewhere, and moving those materials can create new risks when they are unearthed, transported, and disposed of at a new waste site. They refer to these kinds of sites as zombie mines due to their ability to “exert some sort of malevolent effect during their afterlife” (para. 4). Wherever toxic soils are stored, management and monitoring will always be necessary. Thus, a mine’s life does not simply end at closure, but continues to require perpetual attention and care, the cost (environmental, societal, and financial) of which is passed on to future generations.

2.3.1.1. Limitations in Financing and Monitoring Remediation

Necessary post-closure care is often inadequate due to limitations in monitoring practices and financial resources. Mine closure planning notably does not account for perpetual care, only the activities that satisfy relinquishment requirements. Beyond relinquishment, any work remaining on site must be dealt with by the government and, by extension, Canadian taxpayers. Nor does post-closure monitoring account for cumulative impacts, which can extend beyond the site of remediation and outside of the geographical limits of what the company is required to clean up (Kuyek, 2011). Raffensperger et al. (2011) argues that short-term planning is a by-product of our willingness to forget past failures. They explain that “society has accepted the practice of opening the earth, putting waste into it, then closing it ... We bury, forget, and move

on” (p. 2). Local and Indigenous communities are also often excluded from contributing to monitoring practices and criteria, which limits the scope of what is being monitored, where, and for how long (McKay & Johnson, 2017). Non-industry programs to address abandoned and contaminated sites struggle to maintain adequate funding from year to year, and cutbacks in regulatory enforcement have created challenges for enforcing monitoring requirements imposed by government (CCSG Associates & MiningWatch Canada, 2001; Kuyek, 2011)

Mining companies are currently required to provide financial securities to respective territorial or provincial governments to ensure remediation will be paid for in cases where the company is not able to fulfil its responsibilities at the end of the mine’s life. These securities can be a cheque, letter of credit, surety, bonds, investment certificates, term deposits, third-party generates to name only some of the acceptable forms (CCSG Associates & MiningWatch Canada, 2001). These securities, though, rarely cover the full costs of remediation. Most obviously, they do not cover the costs of perpetual care. They are “weakly enforced, incorrectly calculated, and inconsistently collected” and governments are increasingly willing to accept delayed payments (Dance, 2015, p. 60). Many companies have never and will never pay their securities, or what *is* paid accounts for only a miniscule percentage of final remediation costs. The federal government plans to spend \$2.2 billion on just eight abandoned mine sites in Yukon and NWT (CBC News, 2019). The remediation of Giant Mine in the NWT could cost up to a billion dollars on its own (CBC News, 2013, 2018) and the Faro Mine (a Yukon mine abandoned in 1998 after Anvil Range Mining Corp. went into receivership) has so far cost the government \$500 million (Tobin, 2019). These remediation projects were originally estimated to cost \$50-400 million and \$200 million, respectively (Office of the Auditor General of Canada, 2002). The amount collected through financial securities for these sites come nowhere close to covering

these costs. For Faro, \$14 million was collected from the mine operator, less than 3% of the costs of remediation so far (Office of the Auditor General of Canada, 2002). For Giant, \$400 million was collected from two companies (Office of the Auditor General of Canada, 2002). While this would have covered the original estimate of \$50-400 million, the actual cost of remediation has ballooned well beyond that, demonstrating how difficult it is to estimate and regulate remediation costs.

2.3.2. Socio-economic Impacts of Mine Closure

Alongside efforts to calculate and quantify the pollution left behind by mine operations and the scope and scale of ecosystem degradation, humanities and social sciences researchers work to understand the human implications of mineral activities. Increasingly, emphasis is put on the need for mine-adjacent communities to plan for post-closure economic sustainability in addition to the need for physical environmental reclamation (Mining Minerals and Sustainable Development, 2002). Furthermore, chemical contamination, physical pollution, and landscape change cannot be separated from the humans that are harmed as a result, nor can it be separated from the systems and structures in place that have allowed this harm to happen.

The negative social, economic, and cultural impacts of mine closure are complex and differ between communities and mine sites. Impacts of closure are unique from the impacts of mineral exploration, development, and operations (Burns & Church, 2018). A community's experience with mine closure depends on how dependent they are on the industry – access to different sources of employment, investment, and resources outside of mining affect a community's ability to bounce back after mine closure (Bainton & Holcombe, 2018). The number of mining jobs relative to community size, the community's social and economic

characteristics, and internal cohesion are also all factors that influence how a community might experience closure (Roberts et al., 2000).

2.3.2.1. Inequalities in Economic Benefits

While often cited as the main benefit to mineral development in a region, higher incomes, investment, and access to opportunities are unequal and have their own human costs. This money can exacerbate existing problems within communities and families, such as intensifying drug and alcohol consumption, gambling, and mental health issues (Gibson & Klinck, 2005; Horowitz et al., 2018). Furthermore, an inflow of wages into small communities often leads to greater inequality, as these wages are not distributed evenly across all residents (Buell, 2006). Education and training opportunities are also inconsistently available between companies, sites, and employees. Mine employees who were not fortunate enough to work for a company that provided training and educational opportunities to employees (or were unable to access them due to any number of social, cultural, and economic reasons) may be ill prepared to transition into different kinds of work after closure (Edwards & Maritz, 2019). A return to pre-mining economic and social structures can be similarly difficult in cases where a mine has altered or degraded the environment in ways that limit land-based activities and access to country foods (Buell, 2006). Finally, residents of small communities with high rates of mine employment who are unable to find work at the mine for whatever reason may experience feelings of marginalization or a sense of not belonging, which can have negative impacts to their mental health (Buell, 2006; Neil, Tykkyläinen, & Bradbury, 1992; Pini, Mayes, & McDonald, 2010; Skeard, 2015; Wilson, 2004).

To name only one dimension of this inequality, who benefits from mineral development is gendered. Women face barriers to taking advantage of employment opportunities brought by

mines, such as a lack of childcare options and harassment-free workplaces,²⁶ which limits their access to both income and the training and education offered by many mines (Lapalme, 2003). This, then, limits their ability to build on those experiences after mine closure in the way that many men employed by mines can, which would have otherwise empowered women to make a living after mine closure (Lapalme, 2003). Women are also more likely to make career sacrifices when their husbands are laid off due to the pressures of maintaining harmony in the home (Roberts et al., 2000). It is possible that mine closure could benefit women and families as it frees workers from intense work schedules and provides opportunities for more equitable childcare, but it is similarly likely that the stress of job loss and already overcrowded housing conditions common in the North could result in increased family violence (McDonald, Mayes, & Pini, 2012; Rixen & Blangy, 2016).

2.3.2.2. Economic Losses and Community Disruption

The economic gains that come with mineral development in a region quickly disappear when the mine closes. Although mining can bring increased wages, development, and an overall higher quality of life to remote regions that otherwise struggle to maintain a stable economy, the benefits of mine development are rarely long-term. Furthermore, those benefits often do not live up to what is promised by the industry. Rodon & Lévesque (2015) detail these impacts, both positive and negative, in an Arctic context on the communities of Resolute Bay (near Polaris Mine), Arctic Bay (near Nanisivik Mine), and Salluit and Kangiqsujuq (both near Raglan Mine and Nunavik Nickel). These communities benefited from the increased wages, development of new community facilities, and decreased social assistance spending that resulted from mineral

²⁶ For mines that have on-site housing for their employees, women suffer high rates of harassment and abuse (Czyzewski et al., 2014; Sponagle, 2018; Women's Earth Alliance & Native Youth Sexual Health Network, 2016)

development in their respective regions. However, mining also brought (and left behind) contamination, disruptions to traditional economies, high employee turnover, and negative cultural and family impacts in Resolute Bay and Arctic Bay.²⁷ The positive experiences are also short lived, disappearing after closure. Bowes-Lyon et al. (2009) additionally explain that Resolute Bay and Arctic Bay, to differing levels, gained access to education and training opportunities, but these disappeared once the mine closed and the training provided did not lead to any formal certification that could be transferred to other jobs or industries. Similarly, Indigenous peoples in NWT, especially those in Fort Resolution, experienced some employment benefits from the Pine Point mine but were also limited in their ability to continue trapping, and after the mine closed in 1988 they were left with abandoned pits, mine waste, and infrastructure (Sandlos & Keeling, 2012).

Sudden and community-wide unemployment from mine closure affect both individuals and the larger community. The loss of employment can lead to mental health issues, which can in turn contribute to substance use disorders and family disruptions/violence (Roberts et al., 2000). Increased unemployment is often followed by similar increases in rates of suicides, homicides, and stress-related illnesses in communities (Warhurst et al., 2000, as cited in Roberts et al., 2000). Communities may also experience sudden population decline as former employees move elsewhere for work. When the Rankin Inlet mine (NU) closed in 1963 many Rankin Inlet residents had a difficult time adjusting, and over ten years 25 families moved to Manitoba to work at the Lynn Lake mine (Rodon & Lévesque, 2015). For small communities, a loss of 25 families can be significant. Population decline can abruptly alter community dynamic, cause

²⁷ The mines operating near Salluit and Kangiqsujuaq have not yet closed, and so the long-term negative impacts of closure are unknown. The mines operating near Arctic Bay and Resolute Bay both closed in 2002.

family disruptions, and leave remaining residents with limited social networks and resources (Burns & Church, 2018; Edwards & Maritz, 2019). In Kendall's (1992) account of the experience of community members living in the Pine Point townsite, which was shut down and demolished after the mine closed, the relocation and separation of friends and family was a significant factor in the bitter feelings and memories that many former residents have. Similarly, in Archer and Bradbury's (1992) documentation of the "winding down" of Schefferville, a mining camp that existed for 30 years in the Québec-Labrador Trough before the mine closed, they explain that it "was no longer a simple mining camp and stakes were no longer so easily pulled up ... the severance package could not address the problems associated with pending social dislocation and the break-up of communities ties" (p. 186-187).

The loss of profit-sharing, tax revenues, and investment can have far reaching impacts locally and regionally, meaning the economic losses from mine closure impact more than just former employees. Contemporary mine development in the North frequently occurs alongside the signing of an IBA between the company and impacted communities. These IBAs may include profit-sharing agreements, which means all residents of a community receive some sort of regular payment from the company regardless of their employment status at the mine (which would end with closure). Any locally or regionally sourced contracts will end, local businesses experience decreases in revenue as families have a more difficult time affording groceries and household items, and tourism can take a sharp decline (Bowes-Lyon et al., 2009; Edwards & Maritz, 2019). To return to the example of Resolute Bay, after the closure of Polaris the community experienced increases in flights costs, which affected the cost of shipped items (including groceries) and the affordability of tourism (Bowes-Lyon et al., 2009). As a result,

tourism has steadily declined and the airport gift shop has suffered a dramatic decrease in sales since 2002 (Bowes-Lyon et al., 2009).

Governments may be unable to fill the financial gaps left behind by mine closure. In communities where economic resources are limited, important services may be dependent on the funds, human capacity, and/or investment provided by the mine. When the mine closes and the company leaves the region, those services may no longer be able to operate (Lapalme, 2003). This can include integral emergency and health services (Burns & Church, 2018; Laurence, 2006). Local governments may also have difficulties taking over responsibility for infrastructure previously provided and maintained by a mine company (Edwards & Maritz, 2019; Laurence, 2006). In some cases, all infrastructure (roads, airstrips, buildings, docks, etc.) are completely removed from the site and shipped elsewhere for disposal, reuse, or resale. An increasingly common trend, though, is for companies to transfer ownership of key pieces of infrastructure to nearby communities. However, without thorough planning and communication this can lead to new problems. Communities may not have the skills, money, or human capacity to maintain them, in which case the infrastructure can become a liability (Laurencont, Garrood, Vidler, & Fawcett, 2019). To return again to the example of Schefferville, the mine camp-turned-town saw a dramatic increase in population in the mid-20th century due to mineral development and was known as ‘Canada’s richest city’ (Archer & Bradbury, 1992). When the mine company pulled out of its municipal obligations in the 1970s and 80s as global mineral prices dropped, the town struggled to stay afloat. The town saw massive population decline, a disintegration of economic and social conditions, disinvestment, and reduced financial support for public services (Bradbury & St-Martin, 1983). By 1986, municipal services amounted to as much as \$18000/citizen/year (Archer & Bradbury, 1992).

2.3.3. Northern and Indigenous Encounters with Mining

The impacts of mine closure become more complex when we consider them through the lens of settler colonialism and the dispossession of Indigenous lands. The development and operations of a mine can bring social and economic change to Indigenous communities with the introduction of a relatively large number of short-term wage labour jobs. This can decrease the number of people participating in the land-based economies based on hunting, fishing, trapping, and gathering (Hall, 2013). Hall (2013) argues that northern mine employment removes people from their communities, allows for less time teaching the younger generation about the land-based activities that serve as a means of cultural reproduction, and contributes to the loss of Indigenous languages. Buell (2006) additionally explains that these traditional activities can act as a source of individual and community pride and wellbeing, and so less time on the land and fewer younger people learning about those activities (and therefore important aspects of their culture) can negatively impact communities in both the short- and long-term. After the mine closes, it can be difficult for community members to transition back to the traditional economy for a variety of reasons, including fewer individuals having the necessary skills, decreased accessibility of land and water systems, and changing migratory patterns of animals due to contamination or landscape alterations (Buell, 2006; Horowitz et al., 2018). This does not often result in a wholesale abandonment of traditional economies, but instead the emergence of mixed land- and wage-based economies (Angell & Parkins, 2011; Boutet, 2014; Boutet et al., 2015; Gibson & Klinck, 2005). Nonetheless, negative effects are still felt and environmental, economic, and cultural landscapes altered.

2.3.3.1. Perpetual Care and the Legacy of Giant Mine, NWT

The abandonment of Giant Mine in the NWT demonstrates the legacy effects of mine abandonment, short-sighted remediation, and the myriad ways that a mine site can continue to impact the environment and Indigenous communities both during and long after operations. Giant Mine was a gold mine that operated from 1948 to 1999 on the western shore of Great Slave Lake. During the mine's life arsenic trioxide, a non-threshold carcinogen and a by-product of gold extraction, was emitted into the environment and contained within the mine's tailings (Sandlos & Keeling, 2016c). There is no safe exposure level for this substance. The company eventually attempted to reduce emissions and capture the arsenic being released into the air, which was directed into 13 underground chambers. A total of 237,000 tonnes of arsenic trioxide was contained in these chambers roughly the size of seven ten-storey buildings, the equivalent of 300 football fields of contaminated mine tailings were left on the surface, and the underground mine water and surface soil are all contaminated with arsenic (Environment and Climate Change Canada, 2018; O'Reilly, 2015). The chambers containing arsenic trioxide will remain underground at the site indefinitely, and the site itself is now classified as a Federal Contaminated Site to be remediated using public funds.

The development of Giant Mine led to changed settlement patterns, increased immigration of southerners, and undermined the local land-based economy via increased community participation in wage labour. The extensive contamination of the physical environment then worked alongside these socio-economic changes to marginalize the Yellowknives Dene community (Sandlos & Keeling, 2016c). While all nearby residents were exposed to this contamination, the Yellowknives Dene First Nation (YKDFN) experienced a disproportionate level of risk due to the contamination of snow and water used for drinking, and

ultimately they lost access to their local water supply and relied on water being shipped in (O'Reilly, 2015; Sandlos & Keeling, 2016b). Areas previously used for traditional land-based activities were closed off or were degraded to the point of not being useful for hunting, gathering, or fishing (Sandlos & Keeling, 2016c). In addition to the physical affects of being exposed to harmful contaminants and a decreased ability to access traditional country foods, YKDFN members felt “profound feelings of alienation from a landscape that had, in effect, been colonized as a pollution sink for southern economic interests” (Sandlos & Keeling, 2016c, p. 8).

Because of the perpetual nature of many types of environmental contamination and the long-term impacts on communities, these mine legacies have the additional problem of being “not only acute and immediate, but chronic and intergenerational” (Sandlos & Keeling, 2016c, p. 16). Future generations may experience the limited accessibility of traditional lands and resources left by the site, and therefore a decreased land-based livelihood potential (Hoadley & Limpitlaw, 2008). As the ability of community members to subsist off of the natural environment is reduced, the necessity of wage labour and mine employment increases. These future generations will not have received any benefits from past mine operations that could otherwise help offset the impacts of a decreased access to land-based livelihoods (Mining Minerals and Sustainable Development, 2002).

2.3.3.2. Strategic Engagement with Mining

Throughout the history of Canadian mineral extraction, Indigenous peoples have actively engaged with the industry to further their own agendas. Looking only at the ways in which mining and mine closure can negatively impact communities would paint an incomplete picture. Indigenous peoples are not helpless victims of mine development; many have benefitted greatly from the incomes and opportunities provided by mines. Traditional economies and wage labour

are not always antithetical – the latter is often used to subsidize the former in the North (Boutet et al., 2015). Indigenous communities, cultures, and ways of living are always evolving, they are not static. Mining can contribute to the self-sufficiency of individuals and communities and there is a desire among many to do so (Buell, 2006). Even the remaining pits and piles left from mine activity are not universally disliked. On the contrary, these features can be highly symbolic and represent better, more prosperous times (Bridge, 2004; Cater & Keeling, 2013). Critical analyses of northern mining that does not engage with these greater complexities and the nuances of company-community relationships risks inaccurately confining Indigenous peoples to a homogenous group (Boutet, 2014).

Some benefits and spin-off developments from mineral development can have long-lasting positive impacts for communities. Although a short-term benefit overall, the wages from mine employment can result in a greater ability for households to purchase hunting, fishing, and trapping equipment that can continue to be used after the mine closes (Bowes-Lyon et al., 2009). The donation of infrastructure, buildings, materials, and equipment from mines after they close can also be used to meet community needs (Bowes-Lyon et al., 2009). In the mid 20th century, the Innu of subarctic Québec used mine employment to supplement their subsistence economic systems. Boutet (2014) explains that their early experiences with mining, particularly the Schefferville iron mine, was not as simple as either resistance or participation. Mineral development in the region led to the opening of a railway that made the Innu's annual movement to and from hunting grounds more efficient, affordable, and safer as it allowed people to bring more supplies. The wages from being employed at the mine were also used to buy hunting equipment and provisions. While wage labour did take time away from traditional hunting activities, it also made those activities more accessible in other ways.

The development and closure of the Pine Point mine in the NWT similarly brought dramatic changes to the First Nations and Métis communities nearby but was also engaged with by those communities to extract benefits during and after operations. During the mine's development, cutlines were bulldozed through the forest, land users were displaced, and highways were constructed that disrupted local hydrology (LeClerc & Keeling, 2015). However, similar to the Innu of Québec, wages from mine employment contributed to hunting and trapping activities, and some applied the experience gained at Pine Point to other jobs after closure (Sandlos, 2015). Importantly, the abandoned site is used today for hunting and trapping, and the extensive cutlines now allow land users to access the forest more easily. As LeClerc and Keeling (2015) explain, "the very cutlines that forced the initial displacement of land users from the region are being (re)claimed to benefit contemporary land use" (p. 12). Some areas remain inaccessible because of the mine, and water quality remains a concern for residents. However, there are mixed memories and nostalgia tied to Pine Point and the environmental changes it brought – there was economic and environmental disruptions, but the mine was also a great place to work for many (Sandlos, 2015).

These examples of positive and strategic interactions with mining are not meant to downplay the very real and often underestimated impacts of mining and mine closure. They do not negate the fact that mine closure can abruptly leave communities without adequate resources and support, and that environmental degradation can have long-lasting, intergenerational impacts. However, it is important to understand that the situation is complex and that participating in the mining industry can empower communities and contribute to their sustainability if planned for carefully and with community needs, priorities, and values in mind (Burns & Church, 2018). To ignore the more complex individual experiences of Indigenous

peoples across northern Canada would be a disservice to those who have strategically used the industry to improve the lives of their families and communities (Sandlos, 2015).

2.3.3.3. Indigenous Resistance and Activism

Indigenous peoples across Canada have also displayed powerful acts of agency and an incredible ability to organize and respond quickly to resource developments that threaten their traditional lands and communities. Despite the seemingly impossible hurdles associated with resisting and controlling multi-billion dollar mine companies and powerful governments, Indigenous peoples have continued to actively seek justice and equity (Barker, 2015; Niezen, 2000; Rodon, 2018). Put another way, “despite centuries of concerted and evolving efforts, the settler colonial project has never succeeded” (Barker, 2015, p. 44). Not only have Indigenous organizations worked to influence decision making within their respective regions or communities, they have also made room for themselves on the national and international level to gain widespread support for their causes and exert pressure on government and private interests (Sandlos & Keeling, 2016b). In detailing some of the ways that communities have acted in response to resource development, Horowitz et al. (2018) explains that resistance can look like cohesive community organization, relationship-building and negotiating with private companies, strategically creating alliances with other communities and organizations, or a combination of these approaches.

Examples of this activism can be found across the North. The YKDFN and other northern advocates have successfully worked to bring national attention to the many ways in which Giant Mine has caused significant and long lasting harm despite the government’s efforts to downplay and ignore it (Sandlos & Keeling, 2016b). In Québec, Inuit and Cree were faced with widespread destruction of traditional lands and spiritual places via government-sponsored hydro

development in 1960s and 70s. They responded by quickly organizing and learning to participate and negotiate in a foreign, Euro-centric legal system and were able to settle the JBNQA and established regional government systems that created avenues for having their voices heard in future developments (Fabbi et al., 2017; Nungak, 2017; Rodon, 2014). In Nunavut, the possibility of uranium mining in Baker Lake led to the creation of Nunavut's first environmental NGO, which has strategically used social media to promote transparency, amplify the voices of local activists, and show both support for and concern about uranium mining (Scobie & Rodgers, 2013). What is important to understand is that Indigenous peoples are not simply victims of marginalization and dispossession. They are active participants and negotiators (whether they have been invited to the table or not) in ongoing struggles over land, culture, language, and resources (see Piper, 2009; Rodon, 2018; Sistili, Metatawabin, Iannucci, & Tsuji, 2006; Tester & Irniq, 2008).

2.4. Differing and Conflicting Understandings of Remediation

Despite the plethora of examples that demonstrate a wide range of complex impacts to people and their environments, mine closure planning continues to be limited in the scope of issues addressed. This is due to a favouring of technical, scientific, and industry knowledge that quantifies and categorizes all aspects of remediation as neatly as possible. Highly technical knowledge produced by industrial geochemists and engineers is sought out and prioritized while community expertise, Traditional Knowledge (TK) and Inuit Qaujimajatuqangit²⁸ (IQ), and the social sciences of mining and mine closure are left out of the closure equation (Bainton & Holcombe, 2018; Beckett & Keeling, 2019; Roberts et al., 2000; Stacey et al., 2010). The socio-economic impacts of mine closure are not well documented or communicated by industry and

²⁸ Inuit traditional knowledge, institutions, and technology

government, and as a result there are few policies related specifically to these aspects of closure and the industry often avoids or postpones planning for them until it is too late (Edwards & Maritz, 2019; Kabir et al., 2015). As will be seen in Chapter Three and Four, both industry (in their closure plans) and government (in their closure policies and guidelines) neglect to acknowledge or address virtually any of the socio-economic aspects of closure discussed in this chapter.

This is not to say that the natural sciences are not valuable. On the contrary, they are essential for protecting communities from the harmful contamination and pollution that mines produce and too often leave behind, and the mine industry is wise to continuously search for the most cutting edge, well-informed remediation strategies. But containing waste, however important, does little to mitigate many of the social, cultural, and economic impacts that communities are left to cope with. Furthermore, the ways in which contamination and risk are measured are far from objective science. Indeed, no science is without flaws, biases, and limitations. Society is always interpreting, defining, and redefining nature, which we translate through science to produce particular meanings (Bridge & Bakker, 2006). Techno-scientific knowledge cannot be separated from broader systems of capitalism and colonialism, and the assumed truth and value of scientific knowledge should itself be the subject of interrogations (Haalboom, 2014; Liboiron, Tironi, & Calvillo, 2018).

2.4.1. Limitations of Western Science

The assumption that there is a safe level of exposure to most substances that underlies environmental quality testing does not account for the fact that those ‘safe levels’ are not equally applicable across all environments. Arctic ecosystems are sensitive to contaminants in ways that are not always accounted for in environmental testing procedures and quality standards.

Organisms adapted to the cold have different metabolisms than those found in more temperate regions of the world, which affects the levels of accumulated toxins they can handle before experiencing negative health impacts, as well as the rate at which detox and recovery occur (Poland, Riddle, & Zeeb, 2003). Despite the unique characteristics of Arctic environments, the majority of science on toxicity testing and the biological effects of contamination is done in temperate regions, and as a result little published information exists on the sensitivity of Arctic ecosystems (Poland et al., 2003). Furthermore, these tests often do not account for temporal differences or cumulative and synergistic effects (Lavoie, Morin, Laderriere, Paris, & Fortin, 2019). The consequences of these limitations can result in harm to both animals and humans.

The exclusion of Indigenous knowledges further contributes to the limitations of closure and remediation science by neglecting differing exposure pathways, more holistic understandings of life in the North, or the complexities of risk perception. Tsosie (2015) explains that it is scientists—not communities—that determine what is a safe level of contamination and what constitutes harm and risk through technical and scientific means. Furthermore, it is settler society that creates the legal frameworks responsible for addressing harm and contamination. Tsosie states that Indigenous spiritual and cultural experiences and ways of knowing are excluded from these processes. Many northern Indigenous peoples rely on food found in their environment (i.e. country food) for both physical and cultural health and well-being (Cassady, 2007). Those that consume country foods experience a more direct link to environmental contamination, especially those who consume seal and other carnivorous animals that occupy higher levels of the food chain (Tyrrell, 2006). Northern Indigenous peoples must weigh the cost of potential exposure to contaminants with the health and cultural benefits of consuming country food, and the outcomes of this cost-benefit analysis is highly variable between communities

(Cassady, 2007; Poirier & Brooke, 2000; Tyrrell, 2006). Where contamination is present, solutions to protect human populations are not as simple as asking communities to stop consuming caribou or seal or using local water sources. Where local knowledge, claims of contamination, and understandings of risk conflict with those from the medical and scientific communities, the latter is most frequently favoured. (Shriver, Cable, & Kennedy, 2008). To return to the example of Giant Mine, health officials and regulators overlooked the hazards of arsenic poisoning because of the well-accepted belief that there is a safe level of arsenic accumulation in humans (Sandlos & Keeling, 2016c). Despite those beliefs, a YKDFN child died of acute exposure to arsenic via meltwater, and the community claims several more children and elders suffered the same fate (Sandlos & Keeling, 2016b). In this case, science and the government failed the community.

More recently, there has been greater recognition of the complexities of northern food systems and contamination. The federal Northern Contaminants Program, responsible for responding to concerns about human exposure to contaminants in the North and providing dietary advice to northerners (Donaldson et al., 2013), now recognizes the nutritional, cultural, and spiritual importance of country foods for northern peoples (Donaldson et al., 2010; Stow et al., 2017). They also state that including Indigenous governments in the work conducted by this organization “will ensure the cultural context of issues will be considered before publication/dissemination of results” (Government of Canada, 2018, par. 21). It remains to be seen, though, how effectively the Northern Contaminants Program and other similar organizations and independent researchers are involving Indigenous peoples and applying Indigenous understandings of health. Furthermore, the Northern Contaminants Program does not necessarily lead to improved and more nuanced closure and remediation efforts.

2.4.2. Indigenous Knowledge in Environmental Management

These divergent experiences and perceptions of mining impacts and toxicity necessitate the careful incorporation of IK and values into mine remediation planning. While not necessarily conflicting with, better than, or in opposition of Western scientific knowledge, Indigenous ways of knowing and living can differ from dominant knowledge systems in Canada and provide insight into the particular needs of communities (Berkes, 2012). These epistemologies and ontologies point to differing value systems between Indigenous peoples and the capitalist modes of production and western conceptualizations of the environment that underpin resource development in Canada.

In many Indigenous cultures, the natural environment and all its human and non-human inhabitants are understood as relations and critical components of society, but to mining companies and the state the natural environment is a frontier to be explored and extracted from for capital gain (Scott, 2001). Similarly, western society and especially resource industries frame animals as disposable, while animals are core actors with equal societal positions to humans for many Indigenous peoples (Hoogeveen, 2016). For example, in describing environmental assessment in Canada and the ways in which aquatic life is valued differently between government and community, Hoogeveen (2016) refers to “fishhood” as “the intrinsic value of fish as living beings outside of the technical and scientific traits reposted on in environmental assessment hearings” (p. 357). Scientific categorization of non-human actors often fails to capture these kinds of relationships (Todd, 2014). This does not mean Indigenous knowledges, relationships, and ways of living are in conflict with science; on the contrary they can work together to produce more meaningful knowledge that contributes to better environmental management regimes (Todd, 2014). In the context of mine closure and remediation, there is

potential for Indigenous and western scientific knowledge to work in tandem to produce post-closure outcomes that protect communities physically, socially, and spiritually.

Unfortunately, the application of IK in the non-renewable resource sector remains limited. In cases where companies or consultants do attempt to engage with IK, it is often tokenized and relegated to an inferior position below technical, Western scientific knowledge. It is typically sought out to supplement existing scientific data about plants and animals or pre-contact, historical details of Indigenous culture (Sandlos & Keeling, 2016a). The process for obtaining that knowledge is also problematic. Indigenous consultation occurs most often at the front-end of a development while little effort is put in to maintaining long-term conversation and power-sharing (Keeling, Sandlos, Boutet, & Longley, 2014).

In their discussion of the consultation processes for oil sands development in northern Alberta, Baker and Westman (2018) explain that consultation processes between industry and communities are based on rapid assessments and utilize consultants that are not trained in social sciences or ethnographic research, resulting in reports that do not adequately engage with and represent “the incredibly nuanced relationship Indigenous peoples have with sentient landscapes, more-than-humans, and one another” (p. 151). Similarly, Sandlos and Keeling (2016a) explain that IK was used in the Giant Mine remediation project for depoliticized ecological information and kept separate from anything deemed technical or scientific. They argue that, while the Yellowknives Dene First Nation put in considerable work to utilize community consultations in a way that would ensure their knowledge, perspectives, and critiques were integrated into the Giant Mine remediation plan, the engagement process worked to confine their traditional knowledge “to matters relating to local, historical, and non-industrial activities, and to biotic, rather than non-renewable resources” (p. 285). Chapter Three, which in part examines how

companies are incorporating IK into their closure plans, will contribute additional evidence to these observations. As this chapter will show, closure plans typically only superficially refer to IK in short sections dedicated to community engagement or landscape characteristics, and rarely apply community expertise to issues like mine waste management, water quality monitoring, and infrastructure reuse.

Finally, the closure and remediation process fails to account for the historical and cumulative aspects of settler colonialism and mineral development in the North. Planning for and executing mine closure can bring feelings of injustice and distrust from past experiences with mine abandonment and environmental degradation to the forefront of community members' minds (Sandlos & Keeling, 2013). Those feelings in turn influence contemporary interactions with the mine industry (Bridge, 2004; Cater & Keeling, 2013). While companies would prefer to limit the geographical and temporal scope of remediation for the sake of simplicity and cost efficiency, communities may instead want to expand these conversations to include some kind of accountability for the legacy impacts of past mines and the clean-up of contamination that extends beyond the boundaries of the mine site (Sandlos & Keeling, 2016a). Remediation, and reconciliation in Canada broadly, requires "the confrontation of colonial histories (and their ongoing legacies) through processes of truth-telling, apology, and compensation or redress" (Beckett & Keeling, 2019, p. 222). Remediation is about more than just the physical environment: it should also address the inequalities in power between communities and companies – inequalities that exist in many facets of life for marginalized peoples.

2.5. Power, Decision-making, and Community Engagement

Power and access to decision-making plays an important role in closure and remediation, as it decides whose perspectives are favoured in the planning process, where benefits flow, and

whether and how negative impacts are mitigated. Given the numerous and far-reaching impacts of mine closure, conflicting evaluations of those impacts, and histories of colonization and land dispossession, it is integral that Indigenous communities can participate in decision-making around the closure planning process. Ensuring that Indigenous peoples have a just and consistent level of power in resource management (and by extension closure planning) requires the management of complex relationships between communities, industry, and government (Cohen, 2017; Fidler, 2010). In particular, government plays a vital role in regulating how and when companies engage with communities and producing guidelines based on best practices (Fidler, 2010). Unfortunately, throughout much of the 20th century Indigenous peoples were mostly ignored in the development and implementation of resource plans and policies (Rodon, 2018). Only in the last 40 years have positive changes been made at the federal, provincial, and territorial levels to better engage with Indigenous communities and organizations and better protect people and the environment from inadequate remediation (Cowan et al., 2010; Hart & Hoozeveen, 2012). This has been in large part due to the power that Indigenous peoples have gained access to through activism that brings attention to land rights, treaty obligations, and the state's duty to consult (Dance, 2015; Rodon, 2018).

2.5.1. Positive Changes in Community Engagement

An increasingly robust regulatory environment that requires mine companies to engage with communities early on in development is one of the positive changes in mine closure governance. Through the federal Impact Assessment Act, mine proponents today must clearly demonstrate how they are engaging with affected communities and how community feedback is translated into site designs and management plans (Alderson, Gilbride, Bundock, & Sanger, 2019). The rights of Indigenous peoples and the consultation responsibilities of government and

resource industries have also been further clarified through recent case law (Isaac & Knox, 2005). Mines operating on Indigenous territory must abide by the requirements of local land and water boards and land claims agreements (Dance, 2015). The devolution of federal responsibility over mines and metals in the North has also created space for new self-government arrangements, management boards, and committees to control mineral activities (Dance, 2015). With regard to closure and remediation specifically, territorial governments have begun developing their own closure policies and guidelines that centre the needs of Indigenous communities and require Indigenous consultation (for example, Government of Yukon, 2006; Mackenzie Valley Environmental Impact Review Board, 2005; Mackenzie Valley Land and Water Board, 2013).

The historical and ongoing work of grassroots activists and NGOs has additionally incentivized industry to engage with communities and build good relationships to obtain a social license to operate (SLO). A SLO refers to the acceptance given by communities that allows companies to move forward with a development project without receiving public pushback (Otto, 2009). This is not legally required or binding, but beneficial for a company's reputation and generally makes development and operations run more smoothly. Obtaining and maintaining SLO requires the (at least perceived) mitigation of unacceptable risk, maximization of benefits, and transparent communication between company and community, and often involves company investment in community infrastructure, businesses development, and social programs (Veiga et al., 2001; Xavier, Veiga, & Zyl, 2015). IBAs have also emerged as a common method of meeting both community and company needs and filling gaps in government policies. They typically include requirements for training and education programs, rents and profit sharing agreements, procedures for sharing decision making and ensuring community autonomy, and preferential

hiring and contracts for local and Indigenous peoples and businesses (Fidler, 2010; Hodgkins, 2018; O’Faircheallaigh, 2018). These IBAs and the benefits guaranteed to communities are meant to then encourage those communities to grant their social license for the project (Hodgkins, 2018). The result of these changes is an increased emphasis on good relationships and communication between a company and the people whose lives they are impacting.

2.5.2. Benefits of Community Engagement

Thoughtful, consistent community engagement that prioritizes the sharing of both knowledge and decision-making power is essential in good mine closure planning. Communities are their own experts in knowing what they need to be healthy and successful after the mine closes, and so for mine closure to meet the needs of a community they need to be able to contribute to closure and remediation planning (Fidler, 2010). Contributing to mine closure planning also gives the community the power to develop its own vision for the future – potentially one that does not rely solely on mining – instead of having a particular post-closure future imposed on it by short-sighted and overly technical remediation planning (Edwards & Maritz, 2019). The International Council on Mining and Metals (2019b) states that communities should play an integral role in the development of goals, visions, success criteria, and post-closure land uses. The ICMM best practices guide additionally stresses the importance of closure planning that involves and empowers affected communities, engages with a wide range of people within the communities, and begins early on in the mine’s life (International Council on Mining & Metals, 2019b). Xavier (2013) argues that mine closure planning should not be seen “as a deadline-driven problem that has to be solved” but instead “as a matter that has to be continuously attended to” (p. 26).

Community engaged mine closure creates opportunities to centre the needs, values, expertise, and concerns of the people who will inherit the land that is left behind, and opens up space for co-learning and the co-production of knowledge between the company and community. Companies can learn more about the culture, social dynamics, and vulnerabilities of a community, which can then be used to develop more informed closure strategies and success criteria that make sense for that particular community (Hoadley & Limpitlaw, 2008; International Council on Mining & Metals, 2019b). Conversely, communities can learn about the process of developing a mine closure plan and the kinds of considerations, possibilities, uncertainties, and limitations of closure and remediation, giving them realistic expectations as well as a greater ability to negotiate with industry (Veiga et al., 2001). Community engaged closure planning can also lead to greater innovation when concepts, designs, and management plans contain the perspectives and expertise of multiple parties (Edwards & Maritz, 2019). Through the sharing of power to decide how mine closure happens, what issues are prioritized, and whose knowledge matters, and what trade-offs are acceptable, communities can better maximize the benefits they experience and feel a greater sense of ownership of the plans and outcomes that are generated (Edwards & Maritz, 2019; Fidler, 2010).

The need for social transition plans is also increasingly stressed in literature and international closure guidelines, as they can contribute to the long-term sustainability of a community. Many of the negative impacts of mine closure, particularly economic impacts, could be mitigated or minimized by proactive planning for the transition away from a mining-based economy after closure (Costa, 2015; International Council on Mining & Metals, 2019b). To be most effective, the company, responsible governments, and affected communities should be involved in this planning. Planning for this transition should begin early in the mine's lifecycle

and executed throughout operations, like progressive reclamation (International Council on Mining & Metals, 2019b). Laurencont et al. (2019) stress that supporting socio-economic development, specifically development that will help the community and individual workers move away from mining in order to find work after closure, is integral for increasing a community's resilience.

In addition to protecting the environment and communities from short- and long-term harm, the incredible amounts of wealth produced by mines must be invested into those communities to ensure they experience long-lasting benefits, a promise the industry so often makes and fails to live up to. Veiga et al. (2001) argues that mine companies should not only plan to attain a “zero-sum equation” (p. 201) with short-term trade-offs and risk management, but that communities should be able to “realize a net benefit from the introduction of mining that lasts through the closure of the mine and beyond” (p. 192). Xavier's (2013) Socio-economic Mine Closure Framework (Table 2.1) proposes ten key elements, broken into 25 sub-elements, for planning for socio-economic mine closure that centre leadership, commitment, developing and sharing knowledge, and capacity building as being crucial for effective closure planning and social transitioning.

Table 2.1: Socio-economic mine closure framework (the 10 Ps framework)¹

Elements	Sub-Elements	Elements	Sub-Elements
1. Policy	Corporate Commitment	2. Presence	Presence in the Field
	Governance		Stakeholder Analysis
3. Participation	Mobilization	4. Planning	Asset Mapping
	Education/Capacity Building		Socio-Economic Impact Assessment
	Empowerment		Envisioning
	Community Engagement		Project Design
	Partnerships		Performance Indicators
5. Performance	Implementation		Resources
	Monitoring	6. Promotion	Sharing/Communication
	Evaluation Towards Continuous Improvement		Consolidation

7. Perseverance	Overcoming Resistance and Inertia	8. Patience	Allowing Time for Effective Change
	Reinforcing Quality of Participation		
9. Passion	Individual Passion/Motivation	10. Personality	Trust, Respect and Empathy

¹Table redrawn from and originally produced by Xavier (2013).

To achieve these outcomes, though, community engagement must be carefully planned, executed early in the mine’s development, and continue until relinquishment to ensure social transition and closure plans are appropriate and effective (International Council on Mining & Metals, 2019b). In reality, closure planning and community engagement often fall short of these best practices. Company investment in community sustainability are routinely limited to short-sighted infrastructure projects and overly specialized skills training instead of well-rounded education programs (Xavier et al., 2015). Ultimately, without meaningful and long-term consultation and a dedication to building strong relationships, mine closure planning risks repeating past mistakes and harmful legacies. Chapter Four contributes new knowledge to these issues by examining closure planning and community engagement governance in Nunavik. The results of Chapter Four will show that both regional and provincial governments could be doing much more to regulate community engagement in closure planning, and in the absence of regulations the companies operating in Nunavik have substantially differing community engagement strategies. In Chapter Five, recommendations will be made for how governments across the North can more effectively govern community engagement in mine closure to avoid the repetition of past shortcomings and failings.

2.5.3. Challenges in Community Engagement

Best practices for community engaged mine closure planning are not applied by all mine companies, and the regulatory framework in Canada is certainly not without flaws. Despite improvements in the legal requirements for both government authorities and companies to

engage with communities, that engagement is often limited, superficial, and based on southern value systems, expectations, and the belief that nature is a commodity to be exploited (Dokis, 2015). While most jurisdictions in Canada have guidelines and policies in place to ensure that mine companies are engaging with relevant Indigenous groups and adequately protecting the environment, these policies are inconsistent across the North and enforcement depends on political willingness and financial and human capacity, all of which are in short supply (Bainton & Holcombe, 2018; Dance et. al, in press) and there are few examples of successful community engaged socio-economic mine closure (Costa, 2015) There appears also to be a separation between past remediation regimes, which left the many disastrous abandoned mine sites that exist across the North today, and the contemporary remediation regime that embraces the critical role of closure and remediation without acknowledging the problems that still exist today (Dance et al., in press). This mental separating of old and new mining will be confirmed in Chapter Four, and the challenges caused by this belief will also be discussed. Furthermore, not all mine companies are equal. Different companies are operating with differing time scales and amounts of capital, and smaller companies likely to be operating for only a short time are less likely to invest in long-term community engagement and corporate social responsibility strategies (Bebbington et al., 2008; Otto, 2009). The inconsistencies and gaps in closure regulations allow for these inconsistencies in industry practice (Morrison-Saunders, 2019). In Chapter Four we will see how ill-defined and non-existent regulations have allowed the mines operating in Nunavik to have different community engagement strategies that vary substantially in quality and effectiveness.

The strategies used by mine companies to meet their engagement responsibilities routinely fail to account for community dynamics, attitudes, and inequalities. Communities who

have had poor experiences with the mining industry in the past may be more hesitant to participate in company engagement activities (Hoadley & Limpitlaw, 2008; Veiga et al., 2001). Poor engagement strategies in turn risk reinforcing mistrust and an unwillingness to engage with the industry (Sandlos & Keeling, 2016a). Furthermore, companies can easily take for granted the complex and evolving social environments within communities (Laurencont et al., 2019). Inequality is part of that complex social environment. Those in clear positions of power (mayors, elders, business owners) and those who reflect the kinds of people who typically hold power in western society (male, able bodied, cis-gendered, wealthy, etc.) are more likely to be the subjects of engagement by companies, and those community members may not prioritize the concerns of those who have less power, who are more marginalized, and who have unique needs (women, children, disable and LGBTQ2S+ folks, etc.) (Cox & Mills, 2015; Horowitz, 2017; Horowitz et al., 2018). Gender inequalities, for example, can manifest in a lack of perspectives from women when discussions between company and community do occur (Lapalme, 2003; Nuttall, 1998). In some cases, this exclusion of women is purposeful. Pini, Mayes, and McDonald (2010) argue that BHP Billiton's decision to exclude the partners of mine employees, most of whom were women, from mandatory counselling sessions after the abrupt closure of a local nickel mine "illustrates that beliefs about women's inherent excessive and dangerous emotionality continue, as well as further exemplifies the corporation's strategies to suppress particular emotions they deemed risk or inappropriate" (p. 568).

Negotiated agreements like IBAs can help address many of these issues, but these agreements are the result of negotiations that suffer from all these same challenges, with the addition of some unique constraints that can ultimately hinder communities. Negotiated agreements are almost always confidential and community members are often silenced by non-

disclosure clauses while simultaneously being required to support the project or grant specific licenses and approvals, and communities can be locked in to these agreements that may not entirely serve them (or continue to serve them) for the duration of a project's life (Hodgkins, 2018; O'Faircheallaigh, 2018). The enforcement of these agreements, too, is not always clear. There are no government guidelines or procedures for tracking accountability and enforcing stipulations other than what is agreed on within the IBA (Bowes-Lyon et al., 2009).

Ultimately, from an industry perspective, the purpose of community engagement is generally to achieve SLO while meeting the government's minimal requirements for consultation. Put another way, engagement is about getting a 'yes' from communities (Plotkin, 2018), as opposed to being a sincere endeavor. When companies seek out negotiated agreements, consult meaningfully with communities, and work to obtain SLO, they are doing so because it makes development easier for them in cases where communities have the leverage and political power to exert pressure on the company. In Alberta, Baker and Westman (2018) argue that "once knowledge is extracted from Aboriginal peoples, it is refined and distilled to meet consultation requirements, so corporations can extract bitumen from sand" (p. 145).

Finally, although there is ample literature describing the value and challenges in community engagement, examinations of community engagement in mine closure planning are limited (see Costa, 2015 as an exception to this). Community engagement is often discussed in the context of front-end negotiations of IBAs and ESIAs, while the complexities of mine closure are left off the negotiating table as long as possible (Bainton & Holcombe, 2018; Veiga et al., 2001; Xavier et al., 2015). Successful strategies for involving Indigenous communities in mine closure planning remain limited and mostly undocumented in academic literature (O'Faircheallaigh & Lawrence, 2019). Work that does focus on community engaged mine

closure planning typically focuses on documenting past failures or are consultant reports outlining the need for better engagement practices without providing examples of where those practices have successfully been applied (Morrison-Saunders, 2019; Stacey et al., 2010). This thesis attempts to contribute new knowledge to this gap by demonstrating how mine companies are *currently* planning for mine closure, and using the data in Chapter Three and Four to make practical, clear recommendations for improving mine closure practices and governance.

2.6. Conclusion

Mine closure and remediation in northern Canada remain limited in the scope of issues addressed and the kinds of knowledges deemed relevant. For mine closure to be successful in the North, discourse and planning strategies must address the many social, cultural, and economic impacts experienced by northern and Indigenous peoples. Additionally, it must create space to consider the larger historical context of settler colonialism and environmental injustice, and accommodate the needs, priorities, and values of northern residents. Given the many possible understandings and experiences with mine closure, Indigenous Knowledge must also be included in closure planning. This kind of expertise can add to Western understandings of the environment and human relationships to land and contribute to closure strategies that better meet community needs (Berkes, 2012; Hoogeveen, 2016; Scott, 2001; Todd, 2014).

Mine closure and remediation planning have improved significantly, but nevertheless have a long way to go and many hurdles yet to overcome. The inclusion of IK, application of community engagement strategies, and incorporation of socio-economic impacts into closure planning are questionable despite the wealth of literature that points to their importance. Looking back to past failings has been helpful for developing strategies for future success, but what is equally important is the examination of how mine closure is currently being planned for to

ensure that the next generation of closures is set up for success. Furthermore, because both industry and government priorities are not altruistic and both depend on the mine industry generating profits, responsibility falls on affected communities and their local, regional, and ethnic political bodies to protect their interests. Thus, it becomes necessary to understand both company practices (as is asked in Chapter Three: how is mine closure being planned for by those with the power to do so?) and remediation governance (as is asked in Chapter Four: how are authorities at different levels protecting northern communities?) within the historical context of mineral development, mine abandonment, and settler colonialism in the North.

CHAPTER THREE: PLANNING FOR SOCIAL AND COMMUNITY-ENGAGED CLOSURE: A COMPARISON OF MINE CLOSURE PLANS FROM CANADA’S TERRITORIAL AND PROVINCIAL NORTH²⁹

3.1. Introduction

Mine closure plans³⁰ are the instruction manuals for closure. They explain precisely how closure and remediation activities will happen for a given mine site, and outline post-closure objectives (International Council on Mining & Metals, 2019a). They also represent a convergence of government policy and company practices: while government regulatory regimes control many aspects of mine closure, gaps in these regimes and the specifics of individual mine sites create space for individual interpretation by mine companies. Thus, an examination of closure plans can point to both gaps in public policy and the shortcomings of industry practices.

Depending on the region in which the mine is operating, a closure plan may go through different levels of government or public review. Despite their importance, however, closure plans are rarely the subject of critical academic review, with focus instead being placed on documenting the failures of past closures and mine abandonments (e.g. Archer and Bradbury, 1992; Bainton and Holcombe, 2018; Boutet, 2014; Bowes-Lyon et al., 2009; Green, 2015; Lim, 2013; Rodon and Lévesque, 2015). In Kabir et al.’s (2015) examination of ten Canadian and Australian closure plans, the authors found that these documents inadequately address social impact assessment, community consultation, and post-closure monitoring. This research builds on Kabir et al.’s results, focusing more specifically on local and Indigenous knowledge in

²⁹ This chapter was co-authored by Miranda Monosky and Dr. Arn Keeling and was accepted for publication in the *Journal of Environmental Management* in August 2020.

³⁰ Also called mine closure and reclamation plans and commonly abbreviated as MCP, MCRP, CP, or CRP.

closure planning and company strategies for addressing socio-economic impacts in a specific geographical context, northern Canada.

This chapter systematically reviews and compares ten mine closure plans from mines currently operating in northern Canada to determine how companies understand and address many of the critical social, economic, and cultural aspects of closure identified in the literature. This analysis involved collecting publicly available (or requested) mine closure plans and extracting text that addresses the following issues: (1) how mine companies engage with communities for closure planning; (2) how companies are utilizing knowledge gained from communities, and (3) how companies are addressing the socio-economic aspects of mine closure. This review made it possible to compare different approaches to mine closure planning, and to determine how public engagement strategies diverge and overlap between companies and across five different northern territories/regions.

The results show that, overall, companies are poorly addressing the socio-economic impacts of mine closure, and consistently using vague language when describing the collection and application of community expertise and IK. Mine closure plans produced for mines in two jurisdictions (the Northwest Territories and Nunavut) tend to contain more detail and cover a wider scope of issues than those in Yukon, Nunavik, and Nunatsiavut. However, even the best examples have major shortcomings. Some, but not all of these differences are explained by the different regulatory regimes between these jurisdictions. This demonstrates that both policy and a company's willingness to go above and beyond baseline requirements are important factors in effective and comprehensive mine closure planning. Additionally, two major arguments in the literature are confirmed by these results. First, despite the recommendations of industry "best practices" guidelines, mine closure planning continues to focus almost exclusively on technical

engineering challenges to the neglect of social, economic, and cultural aspects. Second, knowledge from Indigenous communities (which are prominent rightsholders in the Canadian North) is selectively and inconsistently incorporated, typically only in relation to ecological and historical information. For mine closure to be successful in a northern context it must incorporate community expertise, emerge from the values and priorities of the Indigenous peoples whose lands mines are operating on, and account for a wider scope of social, economic, and cultural impacts.

3.2. Methods

This chapter focuses on mine closure plans for mineral mines located in northern Canada that are currently operating, or, more specifically, are in the phase of their lifecycle that is after development and before closure. These criteria included two mines that are not currently in production but have not yet entered closure. Closure documents were initially identified and retrieved through online public registries using keyword searches or manually searching through digital folders and files found on public registries. Because of the limited availability of public registries for Nunavik³¹ and Nunatsiavut, closure plans from these regions were requested from the companies themselves or via information requests from public agencies. The documents provided by Canadian Royalties (Nunavik) were in their original French form and translated to English before analysis. A total of ten mine closure plans from Yukon (n=1), NWT (n=3), Nunavut (n=3), Nunavik (n=2), and Nunatsiavut (n=1) were collected. Table 3.1 lists basic information related to the mine sites represented by these closure plans, including affected Indigenous communities, and Figure 3.1 shows their location.

³¹ Québec does have a public registry for documents submitted by mine companies to the government. However, this public registry is difficult to find, access, and navigate, and searching through their online database was ultimately unsuccessful.

Table 3.1: Northern mine sites whose closure plans were collected and analysed.

Mine Site	Operating company	Version year¹	Location of site	Primary mineral	Consulted Indigenous group(s) and organization(s)
Keno Hill Mine Operations	Alexco	2018	Yukon	Silver	First Nation of Na-Cho Nyak Dun (FNNND)
Diavik Diamond Mine	Diavik Diamond Mines	2017	NWT	Diamond	Kitikmeot Inuit Association; Lutsel K'e Dene First Nation; North Slave Métis Alliance; Tłı̨chǫ Government; Yellowknives Dene First Nation
Ekati Diamond Mine	Dominion Diamond Mines	2018	NWT	Diamond	Tłı̨chǫ Government; The hamlet of Kugluktuk and Kitikmeot Inuit Association; Yellowknives Dene First Nation; Lutsel K'e Dene First Nation; North Slave Métis Alliance; Deninu Kue First Nation; Fort Resolution Métis Council
Snap Lake Mine	De Beers	2019	NWT	Diamond	Tłı̨chǫ Government; Yellowknives Dene First Nation; Lutsel K'e Dene First Nation; North Slave Métis Alliance;
Meadowbank Gold Project	Agnico Eagle	2014	Nunavut	Gold	Kivalliq Inuit Association
Meliadine Gold Project	Agnico Eagle	2015	Nunavut	Gold	Kivalliq Inuit Association
Mary River Project	Baffinland Iron Mines	2018	Nunavut	Iron	Qikiqtani Inuit Association
Raglan Mine	Raglan Mine	2019	Nunavik	Nickel	Salluit Land Holdings; Kangiqsujuaq Land Holdings; Makivik Corporation
Nunavik Nickel	Canadian Royalties	2016/2019 ²	Nunavik	Nickel	Salluit Land Holdings; Kangiqsujuaq Land Holdings; Municipality of Puvirnituk; Makivik Corporation
Voisey's Bay	Vale	2016	Nunatsiavut	Nickel; copper	Innu Nation; Nunatsiavut Government

¹ This category relates to the most recent version of closure plan available, not the date of mine opening or closure. Updated closure plans are typically required every five years.

² Canadian Royalties has separate closure plans produced at different times for each of the site's pits

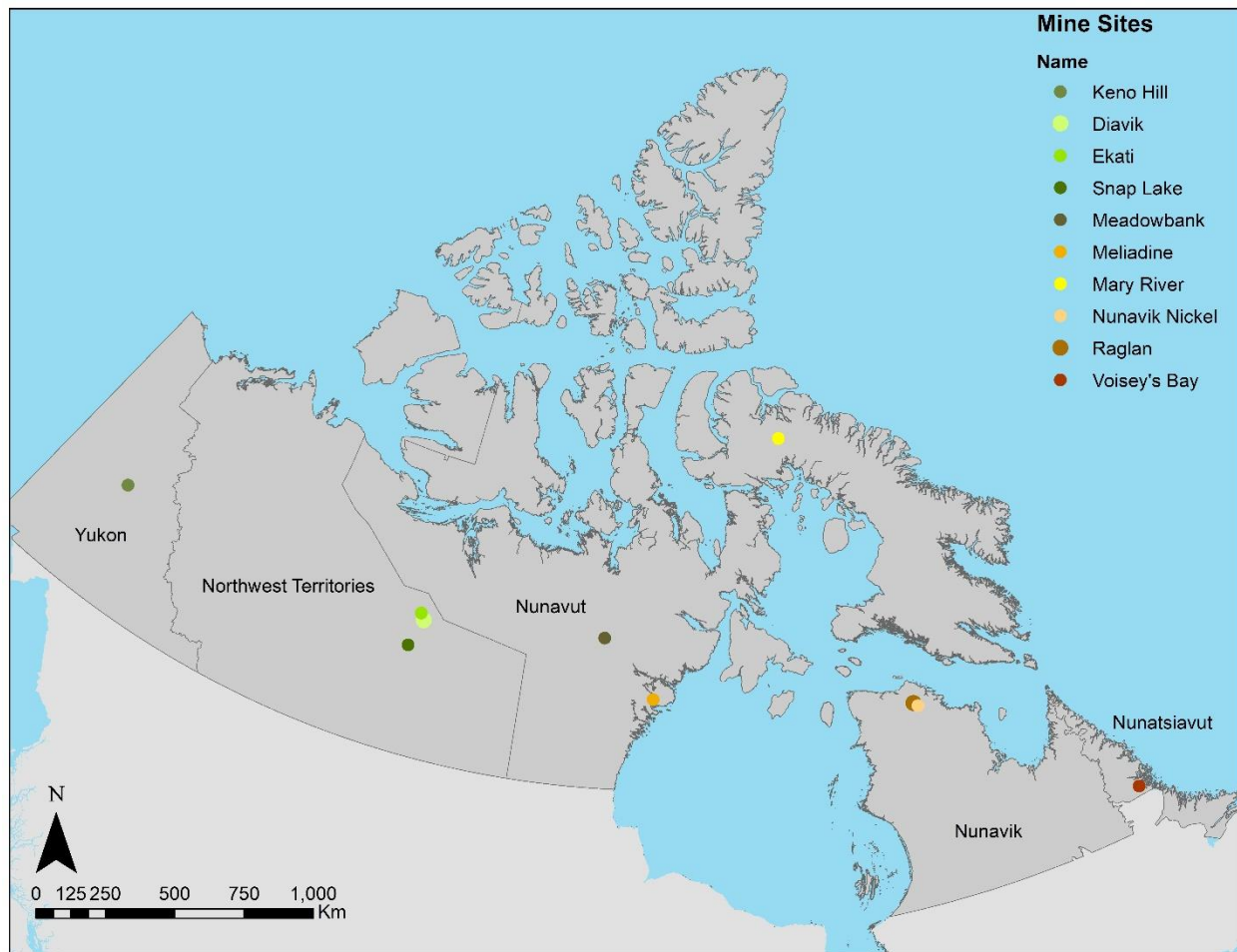


Figure 3.1: Map of the study area showing the locations of mine sites whose closure plans were collected and analyzed for this review. Map produced in ArcGIS 10.7.1 using Statistics Canada (2016) data and contains information licensed under the Open Government License – Canada.

The methods used for this analysis were adapted from literature on document analysis and systematic reviews (e.g., Bowen, 2009; U Flick, 2014; Haddaway, Woodcock, Macura, & Collins, 2015). These kinds of analyses are flexible tools for understanding gaps, overlaps, and patterns across multiple instances of a type of document (Zou & Thomalla, 2010), in this case mine closure plans. Document analysis generally follows a similar set of steps, including: developing research questions, developing document search criteria and collection methods,

coding text into categories appropriate to the research questions, and interpreting, synthesizing, and describing the data (U Flick, 2014; Zou & Thomalla, 2010).

Guidance was also taken from Larsen, Österlin, and Guia (2018), who conducted a comparison of impact assessments from mine companies. These authors developed a framework flexible enough to account for the high degree of variability between the impact assessments (R. K. Larsen et al., 2018). Similarly, mine closure plans vary considerably in organization, issues addressed, and the collection and application of community knowledge. Therefore, I initially developed broad, open-ended categories for text to be sorted into, along with questions relating to their documentation in closure plans (see Table 3.2). These three categories are: (1) methods for community engagement; (2) use of community knowledge; and (3) socio-economic impacts of closure.

Table 3.2: Analytical framework for the review and comparison of mine closure plans.

Category	Question
Methods for community engagement	Does the closure plan explain how and when communities are engaged with?
	Does the closure plan include what the outcomes of engagement activities were?
	Are engagement activities specific to closure planning, or to mine operations more generally?
Use of community knowledge	Does the closure plan cite TK/IQ?
	Where in the closure plan is TK/IQ used? In reference to what topics?
	Does the closure plan clearly demonstrate how community concerns are being addressed?
	Is it clear how community input has influenced the closure plan?
	Does the community knowledge refer specifically to aspects of mine closure, or mine operations more generally?
Socio-economic impacts of closure	Does the closure plan acknowledge the possible negative socio-economic impacts of closure?
	What is the scope of negative impacts acknowledged?
	Does the closure plan present clear plans for mitigating negative socio-economic impacts?
	When are mitigation strategies to begin and end?
	Will there be post-closure socio-economic monitoring?

The term ‘community knowledge’ in the context of this research includes the various forms of expertise, stories, and values that come from northern and Indigenous communities. This includes the many distinct forms of Traditional Knowledge (TK), Indigenous Knowledge (IK), and Inuit Qaujimajatuqangit (IQ), the cumulative body of cultural and ecological knowledge, practices, and values that are generated and maintained by Indigenous communities (Battiste, 2014; Berkes, 2012; Tester & Irniq, 2008; Todd, 2014). It also includes the more general concerns, questions, priorities, and desires that northern communities have concerning mineral development, mine closure, and their own futures. The broad term ‘community knowledge’ is not meant to erase the distinctions between different ways of knowing, but instead is meant to be an inclusive short form for the variety of knowledge systems and perspectives that exist across this geographical region, and to distinguish them from the formalized, technical expertise associated with Western science-informed resource management (Haalboom, 2016).

Coding involved the careful review of each document from start to finish, including appendices, and sorting data into the appropriate category in an Excel spreadsheet. Sentences, phrases, tables, and paragraphs that were relevant to each category were copied into individual cells under each category (community engagement methods, use of community knowledge, or socio-economic impacts). Once this was completed for all ten closure plans, the text under each category was re-read several times and any patterns or noteworthy results summarized. These summaries were then compared between the documents.

Qualitative data interpretation focused on understanding the definitions, meanings, and processes revealed in the text (Altheide & Schneider, 2012). Like Larsen et al. (R. K. Larsen et al., 2018), this examination is not meant to determine whether or not information in closure plans is factually accurate or correct. Instead, it is meant to determine how particular mine companies

articulate and plan for community-engaged, socio-economic mine closure. Furthermore, this examination did not produce quantitative data or counts of particular words or phrases. Two closure plans can theoretically have an identical number of individual sentences with the same number of individual words in each sentence describing a particular topic, but they would still not be equal because the meaning behind each word used, and how those words contribute to larger narratives, would differ. Thus, a quantitative approach would not produce useful data. Instead, I explore the meanings and narratives in the closure plans, and how they envision a particular future for the site, the region, and the affected communities.

3.3. Results

3.3.1. Accessibility

The limited and inconsistent accessibility of closure plans and supplementary documents creates challenges for transparency in mine closure planning. The varying levels of ease with which I was able to collect mine closure plans points to a potential barrier for community participation in closure planning. As stated, the three territories have public registries that are relatively easy to find and navigate if you know what you are looking for, although it is not clear how often they are updated or exactly what documents are (and are not) uploaded. Finding closure plans for mines operating in Nunavik and Nunatsiavut, however, was challenging due to the poor quality or the lack of public registries. This means that communities in some regions must rely on companies to provide those documents, while communities in other regions can find these documents themselves. All ten closure plans contained countless references to technical reports, past research, environmental impact statements, approval conditions, and a variety of other documents to support different aspects of closure. These documents are often not included

or summarized in the closure plan itself, meaning readers must either search for these additional documents or trust that the closure plan is representing them accurately and completely.

The inter-textual nature of closure plans creates challenges for assessing the quality and effectiveness of the closure plan, because a reader may not necessarily have access to all this supplementary data or the technical knowledge to understand it. If a closure plan were to be sent out for public review, the public would be limited in their ability to determine if the closure plan is acceptable because they would not have these additional documents that are being used to justify the closure methods. For example, the Snap Lake closure plan states that “records of past engagement are available in other documentation, including the Environmental Assessment Report ... water license applications and renewals ... and annual closure and reclamation plan progress reports (including annual reports from 2012 to 2017, each of which contains a description of engagement and consultation related to closure plans, objectives, criteria, progressive reclamation, and related topics)” (De Beers, 2019, pp. 2–9). Finding these additional documents to be able to fully understand the closure plan would be possible because of the MVLWB public registry, assuming one has a reliable enough internet connection to find and download the documents. However, it would cost a considerable amount of time (both to locate, download, and read) and would not be possible if the mine were operating in Nunavik or Nunatsiavut.

The Mary River closure plan makes a brief, seemingly insignificant reference to a Closure Scenario Report (Wilkinson, 2014) that exemplifies the problems that can arise when closure plans reference external documents and reports as justification for their closure plans. Published in 2014 by the company and submitted to the NIRB, this report is meant to examine the possible social, cultural, and economic impacts of temporary and permanent closure and

present the company's mitigation strategies. This report, which can be found on the NIRB public registry, is only six pages of text that almost exclusively discusses job loss under *both* the 'social and cultural impacts' and 'economic impacts' subsections, and thus the mitigation strategies described are limited. The document also argues that the mine will create spin-off jobs and concludes that closure will not happen for "many, many years", implying that it is not a pressing issues (Wilkinson, 2014, p. 8). The inclusion of this reference may lead readers to believe that the company has exercised due diligence in assessing the possible negative impacts of mine closure, but in reality the document being referenced uses an incomplete conceptualization of 'negative impacts' and thus offers incomplete mitigations strategies. If a reader wants to check this reference, they would be able to do so on the NIRB public registry, but to check every reference in a closure plan (which are typically several hundreds of pages long) is not a feasible task. For closure plans produced in regions without public registries, it would be virtually impossible.

Even where public registries do exist it can be difficult to retrieve specific documents. The Meliadine closure plan references the environmental impact statement as evidence of the company's community engagement in closure planning. It states that "Agnico Eagle has received comments from various local and regional communities and government stakeholders on the Project. Key community findings and the Company's response to address them are outlined in the Meliadine Final Environmental Impact Statement" (Agnico Eagle Mines, 2015, p. 2). If a reader wants to see this document, they will likely use the NIRB public registry, which has a set of document categories for each mine site. Under the category for Meliadine's Final Environmental Impact Statement there are 191 documents, none of which are clearly marked as being the complete impact statement.

3.3.2. Documentation of Community Engagement

Mine closure plans across northern Canada tend to use vague language to describe the methods used for engaging with and learning from affected communities. Mines operating in the NWT tend to have more informative descriptions of community engagement strategies than those from other territories/regions. Nunatsiavut and Nunavik closure plans are especially lacking in this area. Where descriptions of community engagement methods do exist, they tend to suffer from two problems. First, explanations do not necessarily describe community engagement that occurred for *closure* planning specifically, but instead may refer to engagement activities pertaining to mine development or operations. Second, community engagement might only be spoken about in the future tense while failing to document previous or ongoing engagement for closure planning.

All ten closure plans reviewed varied in their descriptions of engagement with affected stakeholders and communities. Some plans contain no mention of impacted communities at all (e.g.: Raglan Mine and Nunavik Nickel in Nunavik); others have relatively clear descriptions of engagement activities and their outcomes (e.g.: Ekati and Diavik in the NWT), although vague statements are present to some degree across all ten documents. Many of the plans make references to the importance of engaging with Indigenous communities, but without clearly articulating their strategies and outcomes. The Keno Hill (Yukon) closure plan, for example, states that the company recognizes the importance of creating a plan that is developed in partnership with Crown-Indigenous Relations and Northern Development Canada (CIRNAC, formerly Indigenous and Northern Affairs Canada), Yukon Government, and First Nation of Na-cho Nyak Dun (FNNND). The plan references the company's relationship with FNNND, which "provides for significant consultation and collaboration on closure objectives and final options"

(Alexco Resource Corp, 2018, p. 8). The plan is, however, silent on what “significant consultation and collaboration” means, how that will be achieved, how success will be measured, or how input from FNNND was obtained and integrated into the closure plan. The Voisey’s Bay (Nunatsiavut) closure plan is similarly limited. In one of the few references to impacted communities, the company states only that it will “provide the Closure Plan to the Innu Nation and the Nunatsiavut Government for review as per the Aboriginal Consultation Guidelines for Regulatory Approval Applications” (Vale Newfoundland and Labrador, 2016, p. 5) and refer to the existence of “mechanisms established during construction and operations” that allow for review and feedback (p. 35). The Meliadine (Nunavut) closure plan offers a final example of this vague language, explaining that the company will “consider community land use expectations and traditional knowledge in the closure planning” and that “community engagement will continue to be implemented” (Agnico Eagle Mines, 2015, p. 7).

Where detailed descriptions of community engagement do exist, it is not always clear if it is related to closure specifically, or other phases of the mine’s lifecycle. For example, the Ekati (NWT) closure plan contains details about the incorporation of Traditional Knowledge into wildlife monitoring and other similar programs. While this is an important aspect of Indigenous community engagement, it is not clear if these programs will continue after the mine ceases operations and enters closure and remediation. The Keno Hill, Meliadine, and Snap Lake closure plans all have similar examples of this uncertainty around post-closure engagement. The Keno Hill closure plan explains that “consultation and engagement will include a variety of topics and activities within the [Keno Hill Silver District], including permitting of new mines, development of the Keno District Closure Plan or general updates” (Alexco Resource Corp, 2018). In other words, consultation that does happen may not necessarily be specific to mine closure planning.

Similar examples of closure plans detailing seemingly beneficial community engagement strategies, but which lack specific reference to closure planning itself include:

Development plans and potential impacts and benefits resulting from the proposed Project have been presented on an ongoing basis to the general public, community organizations, community leaders, businesses, and government. The feedback obtained from this engagement activity was incorporated in the Project planning to optimize the Project from an environmental and socio- economic point of view, including costs and operability. (Meliadine closure plan, Agnico Eagle Mines, 2015, pp. 68–69)

De Beers' regularly planned engagement includes annual visits to Indigenous communities to hold workshops and community meetings; site visits for community members to the mine; meetings with the Snap Lake Environmental Monitoring Agency (SLEMA) and Tłıcho Kwe Beh Working Group; and annual technical and/or traditional knowledge workshops coordinated through the SLEMA. (Snap Lake closure plan, De Beers, 2019, p. 2.8)

Indigenous groups are consulted on the Mine through a number of forums ... including community meetings and open houses, site visits, and other activities designed to solicit feedback and input from both community members and leaders. (Snap Lake closure plan, De Beers, 2019, p. 2.9)

In some cases, community engagement is only discussed in the future tense. Closure plans will explain how community engagement is going to happen in the future, while neglecting to explain if it has already occurred or been incorporated into the closure plan. One example is the Mary River (Nunavut) closure plan. Mary River is not a new mine--it began operations in 2014. Yet the mine closure plan makes many references to a Mine Closure Working Group that is in development but not yet established or currently contributing to closure planning in any way. The Mary River closure plan also lists a set of topics that the company intends to discuss and receive feedback on from community members, including closure objectives and criteria, additional research activities, and the transfer of infrastructure ownership but there is no clear timetable outlined for this engagement. When any of these goals and requirements will be met is unclear, and describing future community engagement does little to provide insight into what

communities' needs, priorities, and concerns have been for the four years between the opening of the mine and the submission of this closure plan.

The Ekati and Diavik diamond mines offer the best examples of how companies can explain their community engagement methods in enough detail to allow reviewers to understand community participation and its incorporation into the closure plan. Both closure plans have relatively detailed descriptions of engagement activities that have already occurred, what issues community members have raised, and how different Traditional Knowledge working groups and Elders have contributed to closure planning. The Ekati closure plan references a Traditional Knowledge Management Framework which “describes protocols for collecting, storing, and managing TK” and “outlines how Dominion will use TK in environmental decisions for the Ekati mine” (Dominion Diamond Mines, 2018). The Diavik closure plan contains a brief history of community engagement and outlines the demographics that make up their Traditional Knowledge Panel, which has men, women, Elders, and youth. The documentation is clear in how this panel contributes to closure, explaining that it is “a body to facilitate appropriate and meaningful accommodation of TK in the planning and review of mine closure options” (Diavik Diamond Mines, 2017). Diavik’s closure plan also outlines an engagement strategy developed with input and feedback from community members, noting exactly who will be consulted and how that consultation will happen. Finally, both the Ekati and Diavik closure plans include detailed research plans in their appendices to address remaining uncertainties. These research plans are valuable for both tracking the progress of refining and improving the closure plan over time and acknowledging knowledge gaps. Where other closure plans often shy away from uncertainty and present information as if it is final and complete, the Ekati and Diavik closure

plans are transparent about the uncertainties surrounding closure and remediation, which then permits them to create plans for filling gaps in knowledge.

3.3.3. Use of Community Knowledge

Communities have a wealth of knowledge, experience, and insight that are applicable to every facet of mine closure and remediation. In the context of northern Canada, local and Indigenous Knowledge are increasingly acknowledged as critical contributors to effective environmental management, from wildlife management to climate change (Parlee, 2012; Tester & Irniq, 2008; Todd, 2014). Once narrowly defined in terms of “traditional” environmental knowledge, IK is now widely understood to encompass a holistic, place-based perspective on social and environmental relations, including Indigenous ecological knowledge, values, practices, and worldviews (Cohen, 2017; Horowitz, 2015; McGregor, 2013). IK is also usually legally required to be considered in project assessment, review, and permitting processes in each of these northern jurisdictions--though the effectiveness of these processes in doing so is debated (Ellis, 2004; White, 2006).

As with documentation related to community engagement methods, there is significant variability in how mine closure plans integrate community knowledge. For most of the closure plans, community knowledge is either not explicitly used or acknowledged at all, or it is only referenced generically. Neither mine in Nunavik, Raglan Mine and Nunavik Nickel, make mention of community knowledge in their closure plans. The Meliadine plan states only that local communities’ “inputs have been considered in the preparation of this CRP” (Agnico Eagle Mines, 2015), but without explanation of how or where in the document.

In many plans, not only is it unclear how such community review mechanisms address closure and remediation, it is also unclear what ‘consideration for traditional knowledge holders’

means. The Meadowbank closure plan does contain clear examples of how the company is addressing community concerns, and it states that Traditional Knowledge was used in the summaries of the atmospheric, physical, chemical, biological, and social environments. However, the closure plan often explains that Traditional Knowledge was “recorded” or “documented” or “used” without explaining how and where. One of their closure objectives is a “final landscape guided by pre-development conditions and traditional knowledge” (Agnico Eagle Mines, 2014, p. 3) with no details on how success would be measured. Such vague statements are common. Without demonstrating how community knowledge is being applied to closure, general references to its existence do little to practically improve closure planning.

The Snap Lake closure plan provides an instructive example of how community knowledge may be documented in the closure plan without necessarily being meaningfully incorporated. The closure plan itself contains almost no references to community influence on the closure plan. However, a 321-page appendix (which is not contained within the same document and must be located separately on the public registry), simply titled ‘Appendix C Engagement,’ documents all closure-specific community knowledge and government questions and recommendations from 2011 to 2019. Within these 321 pages is a 29-page table that lists Traditional Knowledge input related to closure. This is an overwhelming amount of information that is not organized or synthesized in a way that makes it useful or applicable to the closure plan itself. The body of the plan makes few references to the appendix, and none that point to any specific items in the 321-page appendix. Table 2.2 in the closure plan has a list of “selected engagement” activities taken from the engagement record, but no specific outcomes are listed, just descriptions of topics discussed and dates.

Where closure plans do clearly reference community knowledge, it is most often limited to descriptions of places and ecosystems, and/or concerns about animal and fish species. This information is contained within sections dedicated to community engagement (usually at the beginning of the document) or sections specifically related to wildlife impacts. Rarely do any of the closure plans engage with any form of community knowledge related to the more technical or future-oriented aspects of closure and remediation. This is not to undervalue the importance of using knowledge from communities to understand the mine's ecological and social context. However, it appears that companies (or the consultants they hire to draft closure plans) are operating with the assumption that communities only have valuable information to provide about the natural environment, not other aspects of closure and remediation. Although these documents are essentially plans for the future, community knowledge is routinely limited to descriptions of past or current conditions. Even in the best examples of community-engaged closure plans, it is less clear how community knowledge is incorporated into the remediation of pits and tunnels, management of tailings and waste rock, mitigation of contaminants, and post-closure wildlife and socio-economic monitoring. These results echo those reported by Sandlos and Keeling (Sandlos & Keeling, 2016a) on the remediation project for the abandoned Giant Mine in the NWT. They argue that the planning and assessment process for this major remediation project confined IK to apolitical information about traditional harvesting: "almost nowhere did the report mandate or even mention the ways the TK, and the values embedded in such knowledge systems, might inform technical aspects of the project such as arsenic storage or surface remediation" (p. 285). In closure planning, it is engineers and professional scientists who have the privilege and power to construct the future, rather than communities.

A few notable exceptions show promise for better engagement with and use of community knowledge in closure planning. Closure plans from the NWT, particularly for the Ekati and Diavik mines, more clearly articulate how they are utilizing community knowledge and demonstrate how the company is responding to community needs, concerns, and requests. The Ekati closure plan gives a number of clear examples distributed throughout the closure plan where community concerns are summarized and addressed, for instance:

Community visits in mid-2018 yielded further feedback on the WRSA piles. Many noted the sensitivity of caribou to large cobbles and boulders, and the potential for very coarse substrate on the piles to result in potential for injury. A common suggestion was to ensure that a fine-grained material be used to cover the waste rock storage piles to avoid this potential. It was also recommended that ramps be of an appropriate slope to allow caribou easy access on and off of piles. (Dominion Diamond Mines, 2018, p. 180)

Mixed feedback was received regarding the potential for leaving the airstrip in place, with some viewing it as an important piece of survival infrastructure for bush pilots, while others suggested that hunters may take the opportunity to use the airstrip to land and over-hunt wildlife in the area. Feedback from engagement ... has suggested that the current road system could be used as a caribou movement corridor similar to an esker. Access and predation were two other main concerns regarding caribou use of roads at the Ekati mine. (Dominion Diamond Mines, 2018, p. 245)

Community members have suggested that studies be undertaken to determine what plant species can be effectively grown on kimberlite, and that the community be involved. (Dominion Diamond Mines, 2018, p. 263)

While documented concerns often emerge from community members' prioritization of ecological health, the number of different topics addressed is higher than most other closure plans. In the examples above, the closure plan clearly demonstrates that community members were able to provide input to waste rock pile covers and the possibilities for kimberlite remediation.

The Diavik closure plan similarly contains a number of examples of community knowledge being clearly documented and addressed. It explains that the mine's TK Panel evaluated re-vegetation plans and contributed knowledge about pre-mining plant and wildlife

baselines. The plan lists several community priorities for closure, including the significance of land and water quality, potential employment and business opportunities for northern peoples, compensation for land and water use, the need for regular consultation, and minimizing the overall footprint of the mine site. It also includes design principles identified by workshop participants, such as consolidating the mine site and where to put processed kimberlite. Like the Ekati closure plan, community concerns, priorities, and expertise are not limited to one or two sections dedicated to community engagement or wildlife descriptions, but instead are integrated throughout the document and include a variety of topics. The difference in usefulness and transparency becomes clear when compared to the typically generic statements about community knowledge from other closure plans.

3.3.4. Acknowledging and Addressing Socio-economic Impacts

As with community engagement and community knowledge, the incorporation of socio-economic objectives into these closure plans is typically cursory and/or poorly documented. While industry guidelines and best practices increasingly emphasize the need to address the social and economic impacts of mine closure, these plans lack any common understanding, acknowledgement, or standard practice for mitigating these impacts. The Snap Lake, Voisey's Bay, and Nunavik Nickel closure plans either do not mention negative socio-economic impacts or simply state that there will be none. The Ekati closure plan only mentions a permanent visual change to the landscape in relation to cultural impacts. In the Meliadine closure plan, one of the goals listed for closure is to "help protect traditional values" and "mitigate socio-economic impacts in the area where the mine is located following decommissioning and closure as practically possible" (Agnico Eagle Mines, 2015). These goals and impacts remain undefined in the document. The Raglan Mine closure plan states multiple times that a particular closure

method or strategy was chosen based on “environmental, societal and economic performance” (Raglan Mine, 2019), but these criteria remain undefined.

When closure plans acknowledge negative impacts, they are often limited in scope or not related to closure. The Diavik plan claims that information about socio-economic impacts is included in an appendix titled “Site-Specific Risk-Based Closure Criteria Phase I Report,” but upon review it is clear that these impacts are limited to the potential for contaminants to be found in country foods. The Meadowbank closure plan also limits discussion of health risks to country food consumption. In other cases, the impacts addressed are limited to job loss and the potential loss of archaeological sites. For instance, as the sole example of a possible negative socio-economic impact, the Nunavik Nickel closure plan mentions strategies for avoiding damaging archaeological sites and refers readers to the original environmental impact assessment. Similarly, in describing possible residual negative impacts on the human and physical environment, the Snap Lake closure plan makes several references to the effects of construction and operations and cites the original environmental assessment report from 2002 as evidence that these impacts will not extend beyond those phases.

In some cases, even when negative socio-economic impacts are acknowledged, they are deemed not significant or outweighed by the apparently more significant positive benefits experienced during operations. The Mary River closure plan considers that if an individual is likely to experience both a negative and a positive impact, then the negative impact is deemed not significant – therefore a mitigation strategy is not required. For example, the plan concludes that educational and training opportunities for employees and community members during operations will offset the negative effects of job-loss at closure. The plan also states that, overall, “the potential for beneficial outcomes is equally or more highly anticipated than the potential for

negative effects” (Baffinland Iron Mines, 2018). This ignores the considerable evidence for the opposite effect: that the economic and employment benefits of mining in remote regions are often (though not always) short-lived, unevenly distributed, and outweighed by the longer-term negative impacts of closure (Bainton & Holcombe, 2018; Bowes-Lyon et al., 2009; Buell, 2006; Lawrie, Tonts, & Plummer, 2011; Rodon & Lévesque, 2015; Wilson, 2004).

In general, concrete plans for mitigating negative socio-economic impacts are rare in these closure plans. The Raglan Mine, Nunavik Nickel, Voisey’s Bay, and Snap Lake closure plans present no plans whatsoever for mitigating negative regional socio-economic impacts. Others make general statements about this issue but lack concrete strategies. One objective in the Keno Hill closure plan is to “maximize First nation, local, and Yukon socio-economic benefits” (Alexco Resource Corp, 2018). This is the only mention of socio-economic benefits in the closure plan, and there is no explanation for what ‘maximize’ means in this context or how it will be achieved. Similarly, the Diavik closure plan also includes an objective to “maximize northern business opportunities during operations and closure” and “develop northern capacities during operations and closure for the benefit of the north, post-closure” (Diavik Diamond Mines, 2017) but with no real plan of action. The Meadowbank closure plan also states the company’s intention to “maximize the benefits of the Project for all parties involved while minimizing or eliminating any negative impacts or long-term influences on the environment and local communities” (Agnico Eagle Mines, 2014) without further explanation. Some closure plans briefly mention the transfer of infrastructure to communities after closure, but with no real plans for execution. Without clear strategies for this transfer companies risk leaving communities with infrastructure that they are unable to operate and maintain (Laurencont et al., 2019; Roberts et al., 2000; Xavier et al., 2015).

A number of closure plans contend the socio-economic impacts will be investigated closer to, during, or after closure. The Diavik closure plan simply states that community engagement will guide closure planning, with no additional information about what kinds of issues will be addressed. The Meliadine and Mary River closure plans explain that data collected during operations will contribute to post-closure monitoring activities, but include no details on how the socio-economic aspects of closure are being planned for and mitigated now. The Meadowbank closure plan states that “post-reclamation risks to human and environmental health will be identified and evaluated closer to mine closure, once the final closure designs are determined” (Agnico Eagle Mines, 2014). Yet this closure plan was published in 2014, when the expected closure date of the mine site was only five years later in 2019. This means that the next and final closure plan for Meadowbank will be the first closure plan to include any discussion of human risks, which is far too late for local, regional, and territorial authorities to assess.³² In contrast to this scant coverage of socio-economic closure issues, Rixen and Blangy (2016) found that local residents near Meadowbank have concerns about community violence, stress, and food security when the mine closes and suggest strategies for improving community resilience. Based on its closure plan, the company has not engaged with the local knowledge and concerns about closure planning that exist within this community. This deferral of socio-economic closure planning directly contradicts industry best practice guidelines like those published by the International Council on Mining and Metals, which suggest that closure planning must integrate social, economic, and cultural considerations early in the mine’s life, in order to have the time to

³² Agnico has since opened several new pits to extend operations beyond 2019. The 2014 Meadowbank closure plan used for this research, though, was written under the assumption that the mine would close in 2019.

develop an adequate knowledge base and prepare for the complexities of these aspects of closure (International Council on Mining & Metals, 2019b).

3.4. Discussion

Mine closure plans across northern Canada are highly variable with often vague references to local and Indigenous community engagement, few explicit examples of community knowledge being incorporated into closure planning, and weak planning for the socio-economic and cultural impacts of closure. How poorly a closure plan addresses these issues differs between mine sites, although there appears to be a significant difference between closure plans from the NWT and Nunavut and those from Yukon, Nunavik, and Nunatsiavut. The latter tend to entirely neglect the socio-economic impacts of closure and contain more vague, unhelpful language compared to closure plans from the NWT and Nunavut.

The age of a mine or the number of years until anticipated closure seem to have little effect on the quality or detail of the closure plan with regard to the three areas examined for this study. One could assume that the longer a mine has been in operation the more detailed and thorough the closure plan will be because the company has had more time to collect data and refine their understanding of the site, the environment, and the affected communities. However, the two closure plans from mines that have been in operations longest, Raglan Mine and Ekati (21 and 20 years respectively, based on the version year of their most recent closure plan) differ considerably in how they describe their methods for community engagement and how community knowledge is used. The Ekati closure plan is the best example of those examined, as detailed in previous sections, while Raglan Mine makes no mention of community engagement or what knowledge and concerns the affected communities have shared with the company. Similarly, one might assume that the mine sites nearest to their expected closure dates will have

the most detail and thorough, clear plans for mitigating negative impacts because the company's time for refining those plans is running out. This is again not the case. The Nunavik Nickel and Snap Lake mines are nearest to their closure dates (as few as two years for Nunavik Nickel and less than one year for Snap Lake as it is expected to enter closure in 2020). The closure plan for the former makes no mention of socio-economic impacts and presents no mitigation strategies, while the latter simply refers to the environmental assessment completed in 2002 that concluded there will be no significant impacts.

Different territorial and provincial regulatory regimes likely account for some of the variability identified in the closure plans. As noted in Section two, mine closure policies, regulations, and guidelines vary across these jurisdictions. Policies in the NWT and to a lesser extent Nunavut provide more thorough guidelines for addressing the socio-economic aspects of closure and place a heavier emphasis on collecting and incorporating community knowledge in closure plans. Guidance and policy documents from the Nunavut Impact Review Board (NIRB) and Nunavut Water Board (NWB) make connections between mine closure and potential impacts to cultural sites, employment, community wellness, community infrastructure, and human health (Nunavut Impact Review Board & Nunavut Water Board, 2012), and both organizations mandate community consultation throughout a mine's life. The Mackenzie Valley Land and Water Board (MVLWB) requires proponents in the NWT to "consider factors such as risk acceptability, public perception of risk, socio-economic impacts, benefits, and technical feasibility" in their closure plans (Mackenzie Valley Land and Water Board, 2013), and their guidelines for closure and reclamation have detailed requirements for community engagement and the integration of Traditional Knowledge. The result are closure plans that more clearly address community concerns and acknowledge a wider (though by no means complete) range of negative impacts.

Closure plans for mines located in NWT and Nunavut were more likely to address a wider scope of issues and more clearly engage with community knowledge.

By contrast, plans from Yukon, Nunavik, and Nunatsiavut lacked detail and sometimes entirely neglected all three elements examined for this study. Policy guidance on mine closure from these jurisdictions makes few connections between closure planning, community engagement, and socio-economic impacts. In Newfoundland and Labrador, projects are “evaluated for [their] bio-physical and socio-economic impacts” during the environmental assessment phase (Newfoundland and Labrador, 2010), but no further detail is provided and no connections are made between socio-economic impacts and closure in mining guidelines or environmental assessment regulations. The Québec government closure guidelines (which apply to the Nunavik territory) state that remediation must meet social objectives, but provide no definition or criteria (Ministère de l’Énergie et des Ressources naturelles, 2017). Nunavik does have several regional authorities (the Kativik Environmental Advisory Committee, Kativik Environmental Quality Commission, and Makivik Corporation) responsible for facilitating public engagement and holding companies accountable to Nunavik Inuit, but the Nunavik Inuit Mining Policy only requires social impact studies to be carried out for mineral exploration and operations, not closure (Makivik Corporation, 2014a). The Government of Yukon (Government of Yukon, 2006) emphasizes the need for remediation strategies that “will provide economic benefits to local communities and First Nations” (p. 9). All of these statements are generic and open to a wide range of interpretations--similar to the language used in the closure plans themselves.

Variations in policy cannot account for all of the differences found in these closure plans, however, and even the most robust closure regulations leave significant gaps. The Mary River

closure plan, for example, includes a terms and conditions concordance table that lists the NIRB's closure conditions for the company's water license. A wide range of issues is included, from concerns about the marine environment to noise pollution, and more social and economic concerns about demographics, livelihood, and well-being. Most of the conditions for the socio-economic aspects of closure can be summarized as asking the company to engage with specific community groups and regional organizations to monitor and mitigate socio-economic impacts. While this is not a clear plan in itself, and the Mary River closure plan overall does a poor job addressing the socio-economic aspects of closure, the conditions in this table are an encouraging inclusion that points to the possibility of communities being able to guide closure planning when adequate regulatory frameworks exist. However, the wording used for socio-economic and cultural conditions in this table is notably weaker than the wording used for conditions related to the natural environment despite regulations in Nunavut being stricter than most other territories/provinces. The word 'encouraged' is only used in the table when discussing issues related to population demographics, livelihoods, economic development, human health and well-being, community infrastructure, culture, and socio-economic impacts. For other topics, like the marine environment and wildlife monitoring, stronger language is used, such as 'shall ensure,' 'shall review,' 'shall maintain,' and 'shall meet or exceed.'

Within the same territory or region, closure plans vary considerably in how effectively they address community knowledge and socio-economic impacts. The Ekati and Diavik closure plans contain many positive examples, whereas the Snap Lake closure plan (also in the NWT) only nominally meets territorial requirements by including a lengthy community engagement report in its appendix, without clear indications of how this information is incorporated into the plan. In Nunavut, the Meliadine and Meadowbank closure plans hardly mention potential

negative socio-economic impacts, while the Mary River closure plan at least acknowledges a wider scope of issues. These variations indicate that, even where policies and guidelines are more thorough and directive, companies can interpret and address those policies in ways that suit them. In effect, the quality of a company's closure plan depends on its willingness to go above and beyond minimal requirements and honour the spirit of territorial guidelines as well as its relationship to local communities.

3.5. Conclusion

Successful strategies for involving Indigenous communities in mine closure planning remain limited and mostly undocumented in the academic literature and, as this research shows, in industry documents. For mine closure to be successful and not repeat past failures, companies must work to understand and apply community expertise. Goals and outcomes for closure must engage local values, needs, priorities, and visions for the future (Xavier et al., 2015). A detailed analysis of northern Canadian closure plans allowed us to examine how government policy and industry practices are coming together in this region to create particular futures for mine sites (and their affected communities). I asked how these closure plans, the official and detailed instructions for the closure of a mine site, are utilizing community knowledge, describing their community engagement strategies, and addressing the social dimensions of closure and remediation.

In general, my review of these closure plans reaffirmed observations made elsewhere: mine closure focuses heavily on addressing technical issues, while more complex social, cultural, and historical challenges are not well understood or left out the scope of the planning process (Bainton & Holcombe, 2018; Beckett & Keeling, 2019; Cohen, 2017). Socio-economic impacts are poorly addressed and, in many cases, go unacknowledged altogether in these documents. If

negative impacts are listed, they are often too limited in scope or they are related more to the earlier phases of the mine's life, not closure directly. In other cases, companies appear to assume that the negative impacts of closure are offset by positive impacts experienced during operations, despite closure having unique impacts that require specialized mitigation strategies. Overall, few plans contain concrete strategies for mitigation, making any acknowledgements of negative impacts ineffective in improving the material conditions of communities after closure.

Similarly, the community engagement methods for closure planning are poorly documented. These methods are critical pieces of information for evaluating the quality of a closure plan, as they provide insight into how well the company understands the needs and priorities of the communities to whom they are accountable. In some cases, community engagement is only spoken about in the future tense, regardless of how close the mine site is to its expected closure date. Where past community engagement is described, outcomes are rarely included, making it impossible to evaluate whether or not a company has addressed community concerns. The contents of these closure plans do not appear to align with mine closure guidelines that stress the importance of engaging early with affected communities (Lodhia, 2018; The Mining Association of Canada, 2008). These recommendations are particularly important given the volatile nature of mineral markets and histories of abrupt closures in northern Canada (Laurence, 2006; Sandlos & Keeling, 2016a) – mine companies may not have the time they think they do to engage with communities and develop (and execute) long-term, socially and culturally appropriate closure strategies.

The application of community expertise gained through community engagement can create space for local contributions to the goals, criteria, and outcomes of closure. This is especially important in the North where Indigenous land use, sovereignty, and self-determination

can be negatively impacted by large-scale mining developments and the long-term environmental impacts of improper remediation (Rodon, 2018). Yet in spite of growing participation and consultation in mineral development and environmental assessment, Indigenous communities remain largely excluded from mine closure planning. As shown by this analysis, closure planning is still falling short in the inclusion of community knowledge. In most of these documents, there are no clear indications of how or whether community knowledge was used in the plan, nor is local knowledge cited as a source of information related to closure strategies, beyond descriptions of the natural environment.

These findings provide potential lessons that the governments of Yukon, Québec/Nunavik, and Nunatsiavut/Newfoundland and Labrador can learn from the NWT and Nunavut. Closure guidelines and regulations must explicitly demand that closure plans account for more than just the removal of infrastructure and physical remediation of pits and waste piles. From an early stage, closure plans must clearly outline strategies for community engagement and plan for the sustainability of affected communities. Guidelines from governments and regional authorities must establish clear requirements between community engagement, socio-economic impacts, and closure. While some mining acts and resource policies have specific requirements for community engagement or addressing socio-economic impacts, these are rarely specific to the closure phase. This allows companies to neglect these critical elements in closure planning. Furthermore, even the best examples of closure governance, like that of the NWT and Nunavut, have room for improvement to ensure that there is little opportunity for mine companies to interpret regulations and decide how effective and thoughtful they will be based on their own development agendas.

CHAPTER FOUR: MINE CLOSURE PLANNING IN NUNAVIK, QUÉBEC

4.1. Introduction Effective and community-engaged mine closure planning is complex. It requires that companies, governments, and communities look far into the future, decide what they want for the physical, social, and economic post-closure landscape, and have a clear understanding of the steps necessary to get there. Chapter Three looked at mine closure from a mostly industry perspective, seeking to understand how companies are approaching mine closure in the North. This chapter focuses on the role that government plays in mine closure planning in Nunavik, a region with complex governance systems that include: local Landholding Corporations; multiple regional authorities with different but sometimes overlapping mandates; two IBAs; and a land claims agreement that provides Inuit with special rights while also limiting many of those rights to a small portion of the territory. All of these are additionally operating within the provincial regulatory systems of Québec. Nunavik is currently the site of two operational mines (Raglan Mine and Nunavik Nickel), one abandoned and mostly unremediated mine (Asbestos Hill), and a substantial amount of mineral exploration activity.

Mining regulations have become increasingly robust, and companies are required to consult with affected communities and abide by the requirements of local land and water boards, Indigenous communities, and land claims agreements (Dance et al., in press). In Nunavik, the James Bay and Northern Québec Agreement (JBNQA) recognizes the unique rights of Nunavimmiut and entitles them to a high degree of consultation. IBAs between companies and communities, too, can have consultation requirements that go above what governments require. The degree to which these consultation requirements apply to mine closure planning, though, is not usually clear. Given the potential for communities to experience a wide range of socio-

economic impacts when a mine closes, community engagement in closure planning is essential. Communities are experts in their own histories, needs, priorities, and values. To understand and plan for the socio-economic impacts of mine closure, communities must be meaningfully and consistently involved in the closure planning process. Government plays an important role in regulating how and when community engagement happens, and what kinds of impacts should be included in the scope of closure planning (Fidler, 2010). With careful management, mine closure can create opportunities for community growth, sustainability, and empowerment (Bainton & Holcombe, 2018; International Council on Mining & Metals, 2019b).

Importantly, this work is intended to contribute to the expertise of the Raglan Mine Closure Plan Sub-committee by illuminating how communities can engage with mine closure planning, and what resources are at their disposal for ensuring that the companies operating in Nunavik are planning for closure with their respective impacted communities. It also seeks to identify what gaps in governance must be filled to ensure this happens. While Raglan Mine has established the closure sub-committee (which this research was designed in partnership with), Nunavik Nickel has not employed the same level of community engagement. By conducting interviews with industry and government actors and reviewing mine closure policies and guidelines, it was possible to determine why these differences in engagement exist and what gaps in policy can be addressed to allow Nunavimmiut more consistent access to closure planning. Interview questions and policy analyses were guided by the following questions: (1) How is mine closure governed in Nunavik? (2) What knowledge informs these governing structures and policy decisions? And (3) how is government facilitating Inuit participation in closure planning?

This chapter will demonstrate how limitations in mineral and mine closure governance in Nunavik are producing risks for Nunavimmiut. There is a lack of clear regulations for mine

closure specifically, which leaves communities vulnerable to negative social and economic impacts after the inevitable closures of the Raglan Mine and Nunavik Nickel mines. Ample regulations exist for mine development and operations, and before authorization all mine projects are subject to an ESIA which typically involves public consultations and a review by regional authorities. However, follow-up and enforcement mechanisms decrease once the ESIA is complete and the project is licensed, which creates challenges for ensuring that communities continue to be involved in the project and that key socio-economic issues are being addressed in closure planning. These front-end processes, or the steps taken early in a mine's life to facilitate development and operations, are the main focus of mineral governance. These processes give more attention to the physical aspects of mine closure than social and economic considerations. The regulatory framework for mine closure puts forth strict requirements for remediating the mine site after closure but has little to say about protecting communities from social and economic disruptions. Similarly, community engagement requirements for mine development and operations are more fleshed out than those for closure planning, which is controlled largely by IBA conditions and the decisions of individual companies. If governments are to protect Nunavimmiut far into the future and contribute to the sustainability of Nunavik communities, policy must be explicit in how closure must happen and how communities should be involved in the planning process.

4.2. Methods

To understand the governance of mine closure in Nunavik, particularly those aspects related to socio-economic impacts and community engagement, this research employed semi-structured interviews with employees of regional and provincial governments as well as executive level employees working for the two operational mines in the region – Nunavik Nickel

(owned by Canadian Royalties) and Raglan Mine (owned by Glencore). Purposive sampling was used in the selection of interview participants. This sampling method involved the selection of interview participants based on a particular characteristic that they possess that makes them qualified to be an informant (Patton, 2002; Tongco, 2007). Generalizability is not the aim of this method; instead this sampling method is meant to produce interview data that will explain specific complex systems based on the expertise of participants (Bolderston, 2012). In this case, key informants include government and industry actors that have information about mineral policy, the process of mine closure planning, and/or community engagement in Nunavik. Interviews with government officials are useful for gaining insight about the internal dynamics that influence policy decisions, or “the informal backstage of decision-making and priority setting ... bringing to the forefront aspects of context that are not necessarily written down at the time of decision-making” (Jiwani & Krawchenko, 2014, p. 59). Participants were recruited either in person during a two-week stay in Kuujuaq (Nunavik) in April/May 2019 during the Nunavik Mining Workshop or through email based on my own knowledge and networks or with the help of participants putting me in contact with colleagues who they thought I would benefit from speaking to.

Semi-structured interviews were chosen as the primary method because they are valuable for gaining in-depth knowledge and personal experience with complex topics. They make use of a flexible interview guide as opposed to a strict set of questions or completely open-ended conversations. This allows participants to guide the interview based on their unique knowledge and expertise and cover topics or details that the interviewer may not have been previously aware of, while still ensuring that important topics relevant to the research questions are covered (Bolderston, 2012; Hay, 2010). A total of 15 individuals were interviewed over nine sessions

(Table 4.1). Regional authorities covered by these interviews were Makivik Corporation (Makivik), the Kativik Regional Government (KRG), Kativik Environmental Advisory Committee (KEAC), and Kativik Environmental Quality Commission (KEQC). Interviews with Nunavik Nickel and Raglan Mine executive-level employees also occurred. An interview with two employees of the Ministère de l'Énergie et des Ressources naturelles (MERN) took place in early 2020 and the participants' consent was contingent on the interview transcript being approved by their manager first. Unfortunately, the transcript was never approved. No reason was offered and I simply stopped receiving responses from the interview participants. This happened during the spring of 2020 during the COVID-19 pandemic that caused widespread disruptions in business and government operations, and so this may have impacted the review and approval process. The information in this interview does not contribute to the data used for this research, although it did provide helpful background information that I used to find relevant information elsewhere (e.g. specific policies relevant to mine closure or layperson explanations of regulations). An interview request was also made to the Ministère de l'Environnement et de la Lutte Contre les Changements Climatiques (MELCC, also more casually referred to as the Ministry of Environment) in early 2020. I provided a written list of questions, to which they provided written answers in July 2020. Most interviews were one-on-one conversations, although two sessions involved multiple participants at once. These operated similarly to one-on-one interviews, though, using the same question guide as the others.

Table 4.1: Information about interview participants

Interview #	Participant affiliation	Date of interview	Method
1	Makivik Corporation	April 2019	In person
2	Makivik Corporation	April 2019	In person
3	Kativik Regional Government	May 2019	In person
4	Kativik Environmental Advisory Committee	May 2019	In person
5	Raglan Mine	May 2019	In person

6	Kativik Environmental Advisory Committee	June 2019	Phone
7	Nunavik Nickel ¹	June 2019	Phone
8	Nunavik Nickel	June 2019	Phone
9	Kativik Environmental Quality Commission ²	February 2020	In person
10	Kativik Environmental Quality Commission	February 2020	In person
11	Kativik Environmental Quality Commission	February 2020	In person
12	Kativik Environmental Quality Commission	February 2020	In person
13	Kativik Environmental Quality Commission	February 2020	In person
14	Kativik Environmental Quality Commission	February 2020	In person
15	MELCC	July 6, 2020	E-mail

^{1, 2} The two Nunavik Nickel participants were interviewed at the same time, and the six KEQC participants were interviewed as a group.

This research would have benefitted from interviews with local Landholding Corporations (LHCs) and leaders in IBA signatory communities (Salluit, Kangiqsujuaq, and Puvirnituk), as they are the stewards of Inuit-owned lands and include individuals who are most likely to participate in on-the-ground mine closure planning. These interviews were not sought out as it likely would have required travel to the communities. This would have gone against the wishes of the Inuit parties on the Raglan closure sub-committee who, as discussed in the Chapter One, felt that travel to these small communities would have placed an unnecessary burden on them for little material gain. Research objectives and methods were developed with guidance from the sub-committee to ensure that the research was both helpful and appropriate, and thus travel to Nunavik was limited to the one trip to Kuujjuaq. However, information about the LHCs and local forms of government were gained through both formal interviews and informal conversations with community leaders and government employees that occurred during my stay in Kuujjuaq and attendance at closure sub-committee meetings.

In order to develop an understanding of the systems governing closure planning, participants were asked questions related to their knowledge and experience with mine closure planning, as well as their organization's priorities and strategies for mine closure and community engagement. Interviews lasted between 25 and 70 minutes and occurred either in person, over the

phone, or through email depending on the participant's location. In person and phone interviews were manually transcribed and sent back to participants via email, at which point they were given the opportunity to review the transcript and make any changes or omissions that they felt were necessary. Three transcripts received minor revisions for the sake of clarity and accuracy, and the rest remained in their original form. Analysis involved the reading and re-reading of these transcripts, sorting data into themes and categories, and making connections between different interviews to understand where information is repeated and where gaps in knowledge exist (Roulston, 2014). Themes that data were sorted into were based on the three research questions: (1) How mine closure is regulated; (2) the knowledge about and experience with mine closure that informs those systems; and (3) strategies for facilitating Inuit participation in closure planning.

Lastly, policy and guidance documents from Nunavik and Québec were examined to supplement this data (Table 4.2). Documents produced by the Government of Québec, Makivik Corporation, and the KEQC pertaining to mining, mine closure, and Indigenous consultation were collected from government websites. Many of these documents were referenced in interviews and informal conversations with government and industry employees, and they cover all of the major policies and guidelines used to assess and regulate mine closure. Questions that this policy review sought to answer were: (1) Do government policies and guidelines explain how companies should address socio-economic aspects of closure? If so, how, and what specific impacts are included? (2) Do government policies and guidelines explain how companies should engage with impacted Indigenous communities in closure planning? If so, how? And (3) Do government policies and guidelines have clear requirements for including community concerns and knowledge into their closure plan? Like Chapter Three, this analysis involved reading each

document closely and copying relevant text into one of three categories based on the three research questions to create a summary of how these issues are (or are not) being addressed by formal government regulations. This combination of text from policies and guidelines and accounts from government and industry employees about their organization/company's strategies for closure planning combined to create a figurative map of mine closure governance in Nunavik. The results detailed in this chapter are meant to make this map of mine closure governance clear and identify gaps in knowledge and regulations that, if left unaddressed, could lead to more examples of poorly remediated mine sites and community social and economic decline in the North.

Table 4.2: Government documents related to mining and mine closure that were examined

Authority	Document
Government of Québec	Environmental Quality Act (2020)
Government of Québec	Section 23 Schedule 3 of the James Bay Northern Québec Agreement (1985)
Government of Québec	Mining Act (2020)
MELCC	Directive 019 sur l'Industrie Minière (2012)
MERN	Guidelines for Preparing Mine Closure Plans in Québec (2017)
MERN	Guidelines of the Ministère de l'Énergie et des Ressources Naturelles in the Area of Social Responsibility (2017)
MERN	Aboriginal Community Consultation Policy Specific to the Mining Sector (2019)
Makivik Corporation	Nunavik Inuit Mining Policy (2015)
Makivik Corporation	Nunavik Guidebook: Mineral Exploration, Mining Development and the Nunavik Region (2011)
Kativik Environmental Quality Commission	Information and Public Consultation Procedure (1998)

4.3. Results

4.3.1. Mine Governance

The province of Québec has final decision-making authority for all aspects of mineral development in Nunavik, including mine closure. The MELCC and MERN are responsible for

governing how mine closure happens, what mine closure plans must contain, and the standards for remediation. The Mining Act and Environmental Quality Act regulate most aspects of mine closure, while Directive 019 and the Guidelines for Preparing Mine Closure Plans in Québec are guidance documents that communicate the provincial government's expectations for proponents. As for regional authorities, only the KEQC has a defined role in closure planning through the impact assessment process and regular review of closure plans. Makivik and the KRG may sit on committees with mine companies where closure is discussed (such as the Raglan closure sub-committee, which Makivik is a member of), but these engagements originate more from the companies themselves than from government regulations.

Despite the social, economic, and cultural protection of Nunavimmiut being built into the mandates of the KEQC, KEAC, KRG, and Makivik, the focus of regional government policies is largely on physical, environmental remediation. Statements about whether and how companies should assess and mitigate negative socio-economic impacts either do not exist at all, are vague and unhelpful, or are not related to closure specifically. Québec's guidelines for preparing closure plans state that "reclamation techniques may affect wildlife, plants and the social environment" and that "the reclamation of accumulation areas must attain technical, environmental, and social objectives" (Ministère de l'Énergie et des Ressources naturelles, 2017, p. 27). However, this document does not define 'social objectives' and provides no guidance on how to measure success in meeting them. The Nunavik Inuit Mining Policy sets out objectives and corresponding actions for proponents to minimize the negative social and environmental impacts of mines, but there are no actions related to the social aspects of closure and the policy does not explain what negative impacts it is referring to that a company should be cognizant of. Only one action related to closure exists at all, which is that the site must "be restored to once

again permit access to Nunavik Inuit, as close to the original state of the sites as possible, and to ensure they will not be a source of environmental contamination or a danger to humans or wildlife” (Makivik Corporation, 2014a, p. 14), reinforcing the observation that mine closure tends to be framed as being solely related to environmental remediation.

There is rarely overlap between mine closure regulations and requirements for mitigating socio-economic impacts. The Mining Act, Environmental Quality Act, and Guidelines for Producing Mine Closure Plans in Québec discuss the requirements for the environmental, technical, and engineering aspects of closure in great detail, while the social, economic, and cultural aspects are considered only in relation to a mine’s construction and operation phases. Connections are not made between the closure phase of a mine’s life and possible negative impacts to human communities. Section 23 schedule 3 of the JBNQA, which describes the necessary elements of an ESIA in Nunavik, states that proponents should be attentive “to impacts occurring at different phases of development, and on different scales” (Québec, 1985). This is the closest the agreement comes to discussing closure and remediation. The Nunavik Inuit Mining Policy states that an impact assessment must be completed for mineral exploration and mine operations, but not for closure (Makivik Corporation, 2014a). The MELCC’s Directive 019, which sets out the Ministry’s expectations and is used in evaluating a project, states that proponents must indicate how the project might influence a community’s traditional way of life, including changes to the accessibility of areas used for hunting, fishing, and trapping (Ministère de l’Environnement et de la Lutte Contre les Changements Climatiques, 2012). It could be argued that this statement should apply to the post-closure environment, but it is not explicit and could be interpreted and applied differently by different proponents.

Much of the region's influence over mineral development and mine closure comes from the KEQC. Unlike most other land claims agreement signatories throughout Canada, the KEQC has decision-making power regarding lands and resources (Rodon, 2018). As one participant explained, though, the power that this committee holds comes largely from the ESIA that occurs during the planning phase of a project's life (Interview #1). Before beginning work on a project, proponents must provide the KEQC with preliminary information about the proposed development. Then, the committee determines whether or not an impact assessment is required and the scope of the assessment, which typically involves public consultations and research to determine the possible social and environmental impacts of the project (Ministère de l'Environnement et de la Lutte Contre les Changements Climatiques, 2020). Based on the impact assessment, the KEQC can either deny or approve the project and, if approved, outlines the conditions under which the project can be developed (Interview #15). This applies to all lands in Nunavik. After the impact assessment has concluded and the project approved, the proponent must submit documentation of their activities each year for additional review by the KEQC, although these yearly updates do not go through individual impact assessments or go out for public review (Interview #6).

The ESIA process allows for regional governments and communities to communicate their needs and expectations for a new mine. While impact assessments are not specific to the closure and remediation stage, they are meant to account for possible project impacts at every stage, from construction to post-closure. This means the KEQC does have some ability to assess and set conditions for the company's plan for closure and remediation. A preliminary closure plan is provided to the KEQC as part of the impact assessment process, which it can review, approve, reject, and set additional conditions. A KEQC member explained that subsequent

interim closure plans produced every five years as required by the Mining Act are also reviewed, at which point the committee can seek additional information from the company, send the closure plan back for revisions, or set additional conditions (Interview #7). It is MERN's responsibility to approve these interim plans, but, as one participant explained, "[MERN] will take into account our comments. If we say it makes no sense, they will not approve it" (Interview #10). When asked about the role KEQC would play in assessing a mine's final closure plan, the last one produced before the mine formally enters into closure, a participant explained that the KEQC will "have the final say" on whether or not the company has fulfilled its remediation responsibilities. However, the committee has not been through this process yet because the region's only closed mine (Asbestos Hill) shut down before the Mining Act and Environmental Quality Act existed (Interview #11). Finally, despite the important role that the KEQC plays in ensuring mine companies are acting in the best interest of Nunavimmiut, the province can overturn any of the KEQC's decisions at any point, meaning the province holds more formal power over Nunavik lands (Rodon, 2018).

Other regional authorities fill an advisory role to government and industry, with little formal power to make decisions. The KEAC in particular makes policy recommendations to relevant governing bodies to ensure that the environmental and social protection regime outlined in the JBNQA is upheld. It meets several times each year and facilitate research into the possible effects of provincial and federal policy changes. KEAC's mandate includes pursuing actions "regarding sustainable development, the safeguarding of biodiversity, climate change, and the quality of life of the residents of Nunavik" (Kativik Environmental Advisory Committee, 2020). A KEAC member explained that if, for example, the provincial government was amending or creating new regulations, the committee would "study the possible impacts this could have on

the region and its inhabitants, and then we make recommendations to the government accordingly” (Interview #4). For example, in 2018 it provided feedback on draft regulations stemming from the Environmental Quality Act and requested that new protections regarding adverse effects on wetlands and other bodies of water be extended to also apply to Nunavik. In this way the KEAC plays a similar role as the KEQC, but in relation to government policy rather than specific development proposals and with less power to make decisions.

Makivik Corporation also advises government and industry, with the primary purpose of promoting regional social and economic agendas. Makivik is, as one participant described, “the watchdog for Nunavik Inuit rights and interests,” encouraging good industry practices that are in line with the views and lifestyles of Nunavimmiut (Interview #1, April 2019). It receives, administers, and invests JBNQA compensation money for beneficiaries, and facilitates economic development that they believe will improve the lives of Nunavimmiut, balancing financial gains, environmental quality, and community well-being. In 2002, for example, Makivik entered a partnership with the Québec Government, called the Sanarrutik Agreement, that outlined a shared economic vision for development in Nunavik. It focused on mining and energy development as a means to improve living conditions for Nunavik residents (Makivik Corporation, 2014a). In 2015, in response to Plan Nord, which similarly promoted resource development in Nunavik but without any consultation with Nunavimmiut, Makivik created the Nunavik Inuit Mining Policy. The guiding principle of this policy is to ensure that “Inuit derive significant direct and indirect social and economic benefits during the exploration, development, operating and restoration phases of mining activity in Nunavik” (Makivik Corporation, 2014a, p. 12). A Makivik employee explained that the Nunavik Inuit Mining Policy is “a process and a framework for mining companies to work closely with... collaborate with us to negotiate IBAs

and whatnot,” but it has no enforcement mechanisms, and “in terms of authority and making regulations and policies, [Makivik is] not set up for that” (Interview #2). Thus, Makivik’s role is to both encourage mineral development activities and also restrict it in ways that align with the needs and values of Nunavik Inuit, but it does so with little formal decision-making power.

Lastly, the KRG acts as a public municipal government for the region and as such is more focused on service provision, land-use planning, and the general operations of the Northern Villages. It has jurisdiction over all of Nunavik and is involved broadly in inspections and follow-up with regard to mining activities and the environment. KRG is currently in the process of revising the region’s master land-use plan, which influences where exploration and mining activities can take place. The current master land-use plan was adopted in 1998 and required companies to notify the KRG about their activities and consult with adjacent communities. Proposed revisions would also create zoning by-laws that allow the KRG to reject certain activities (Interview #3). KRG’s Renewable Resources, Environment, Lands and Parks Department acts as a liaison between the MELCC and the communities on environmental issues and assists in addressing specific environmental concerns (Kativik Regional Government, 2019). The LHCs and NVs in each community also operate as a more local municipal government with assistance from the KRG, and they are similarly concerned mostly with general operations. They are responsible for issuing permits and authorization for any development proposed on Category I and II lands, but currently no mining activities have occurred outside of Category III lands. Both the LHCs and NV of Salluit, Kangiqsujuaq, and Puvirnituk are signatories of their respective IBAs with Raglan Mine and Nunavik Nickel, though, so they have a role in mine closure planning through IBA negotiations and subsequent engagement requirements.

Because most of these regional authorities act as advisors to other governments and industry, the ability of regional authorities to participate in decision-making relies on the relationship between the two levels of government. Participants from regional authorities mostly expressed confidence in their good relationships with the province and explained that, despite the province having greater authority, Quebec authorities have always agreed with the recommendations of regional bodies. One participant explained that in 30 years the Ministry of Environment has always agreed to the conditions set by the KEQC (Interview #3). Another stated that the provincial government always takes regional policy recommendations into account, and that the recent amendments to the Mining Act included a consultation policy that was directly connected to the Nunavik Inuit Mining Policy's principle of transparent communication (Interview #1). However, the KEQC has never outright rejected an unwanted project and thus it is unclear if the province would support this kind of decision (Rodon, 2018). While good relationships currently exist, one participant from Nunavik argued that the province has greater incentive to push a project forward regardless of the region's approval because it has more to gain and less to lose. The province will gain tax revenues and know that any negative impacts from mineral development will occur in remote areas where relatively small populations live compared to the south. This participant explained,

[The Québec Government] will want to reap the benefits and more employment means more tax to make the economy roll, so I mean they're all for development, it's in their favour ... so I think governments are very pro-development and that's why these mines have the go-ahead even though the social acceptability was not there.³³ (Interview #2)

In terms of practical challenges in the relationship between regional and provincial authorities, participants identified communication and access to resources as problems. A

³³ In stating that 'the social acceptability was not there,' this participant is referring to the development of Nunavik Nickel's wharf at Deception Bay, which many people from Salluit and Kangiqsujuaq were opposed to because there is an existing wharf there for Raglan Mine.

member of the KEAC, in describing the communication challenges between the region and province, explained that “there’s a problem on both ends.” On one hand, they explained, the province tends to organize meetings and consultations last minute. On the other hand, when the province does reach out to regional organizations or LHCs, there may not be much of a response. This participant also explained that some organizations in Nunavik, namely KRG, are also limited in their ability to access federal grants because of its status as a region within the province, and so relies heavily on the province to act on crucial issues (Interview #4). In fact, in 2018 the KEAC sent a letter to Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) that brought attention to how frequently the NVs and KRG are excluded from federal funding programs intended for Indigenous and northern communities. The letter argued that important environmental priorities have not been addressed because of limited financial support from both Québec and Canada (Kativik Environmental Advisory Committee, 2019). The remediation of Asbestos Hill, for instance, remains a provincial responsibility and is moving much more slowly than regional authorities and community members would like, despite the region and Nunavimmiut being highly motivated to move forward with this work³⁴ (Interview #6).

4.3.2. Mine Closure Knowledge and Experience

Much of the regional authorities’ knowledge and experience about the environmental aspects of remediation come from a two-decades-long clean-up project for the many abandoned

³⁴ The Asbestos Hill site was classified as an orphaned mine and added to the province’s abandoned mine site priority list 2019, at which point the provincial government was able to allocate funds for its remediation. Before then, it was still under private ownership despite it not being operational since 1984, and therefore the provincial government had difficulty taking over responsibility of the site. While many of those interviewed recognized these challenges, there was also a belief that the province could have worked harder and moved quicker given the high level of risk associated with the asbestos contamination, eroding tailings pile, and unknown materials buried underground.

mineral exploration sites located throughout Nunavik. Mine companies were not required to clean up exploration sites before 1976, and so equipment, fuel caches, and chemicals were often left behind without any cleanup, especially if the equipment at the site became outdated and less valuable (Duhaime & Comtois, 2003). As KEAC and KRG participants explained, in the 1990s Nunavimmiut began asking KRG for assistance cleaning up barrels, chemicals, and equipment left on the land by mineral exploration companies. These materials were beginning to degrade and become unstable, creating health and safety risks for the environment and communities (Duhaime, Bernard, & Comtois, 2005). After several years of consistent complaints about these sites, KRG began to formally look into the issue. Through a combination of community surveys and aerial photos, 600 possible abandoned exploration sites were identified, of which 275 abandoned sites were confirmed (Duhaime et al., 2005). Because of the negative attention these exploration sites were receiving in the news, mineral exploration companies working in the region established the Fonds du Restor-Action Nunavik (FRAN) and, between 30 companies, raised \$2 million for this restoration work. MERN contributed an additional \$4 million. Of the 275 confirmed abandoned sites, 25 represented a major risk, 95 represented a moderate risk, and the rest were minor risks (Duhaime et al., 2005). Between 2000 and 2017, through FRAN, 90 sites were remediated, and work has now begun on an additional 30 sites (Interview #6). These sites range from being ‘minor,’ with fewer than ten barrels and small pieces of equipment, to ‘major,’ with buildings, trailers, heavy equipment, hundreds of barrels filled with hydrocarbon based products, oil, diesel, and jet fuels, and large batteries (Interview #6).

Although the interview questions for this project were specific to mine closure, participants frequently spoke about these abandoned exploration sites. It was clear throughout most of the interviews that there is greater focus on, knowledge about, and experience with the

cleanup of these sites than the long-term planning for the closure of fully operational mines. The experience with the FRAN project provided valuable knowledge about environmental cleanup and brought attention to the tendency for some mine companies to leave materials behind when regulations are weak and consequences are unlikely. The remediation of major mine sites, though, are much more complex endeavors that will require a much greater breadth of expertise and technical knowledge than regional authorities currently have (Interview #6). Mine closure is also more likely to have challenging socio-economic dimensions than small exploration site cleanups.

The abandoned Asbestos Hill mine has played a key role in shaping regional authorities' knowledge, beliefs, and attitudes about closure. Participants working for regional bodies frequently pointed to Asbestos Hill as an example of poor outcomes related to mine closure and remediation. Carney (2017) details the legacies left behind by this mine, such as the unremediated tailings and asbestos contamination at the mine site as well as in between the site and the port at Deception Bay, which has affected wildlife and human health. Interview participants referenced the harm caused by Asbestos Hill in describing their ideals and priorities for future closures. For instance, participants often referred to the poorly remediated and currently eroding tailings pile at Asbestos Hill and emphasized the importance of the tailings piles at Raglan Mine and Nunavik Nickel being contained, stabilized, monitored, and made to blend into the surrounding environment. Participants also explained that neither the communities nor the region benefitted from Asbestos Hill due to the lack of benefits-sharing agreements. As a result, profit-sharing, preferential hiring for Inuit and preferential contracting for local and Inuit-owned businesses were a priority in future negotiations with Raglan Mine and Nunavik Nickel. One KEQC member explained that there is no way to avoid all of the negative environmental

impacts of mining because it is ultimately a destructive activity, but the committee can ensure that those impacts are minimized and that Inuit gain something in return (Interview #9).

The socio-economic impacts of closure, while largely absent in policy, are relatively well known to regional actors. Indeed, there appears to be a disconnect between what regional authorities know about closure and what policy accounts for. When asked about how mine closure can impact northern communities, participants often spoke about sustainability. Many recognize that the communities have benefitted considerably from mining activities in the region, but remain skeptical that these benefits are contributing to community sustainability, or that they will last long after closure. Issues related to the abrupt decline or end of employment, tax and business revenue, and profit-sharing arrangements came up just as frequently as those related to tailings stability, water quality, and landscape changes. Participants expressed concern about the impact that mine closure may have on a community's ability to maintain infrastructure and services, and how unemployment could affect the health and well-being of families and the community. Another concern was the possibility that Inuit will lose their jobs without transferable skills or employment opportunities in other industries in the region/community. One participant explained,

When these people stop working there at the mine, that will be 2.5 million dollars a year [in wages and compensation] that will disappear ... The standard of living might drop, some families might have difficulty paying rent, buying food, and maybe some other social impacts will happen at home. Contractors too, it is not only for employees, Air Inuit is making money, other companies in Nunavik are making money [from the mines]. (Interview #9)

Interviewees also mentioned environmental issues in the context of their human impacts. Both the mines active in Nunavik are in the Deception Bay region and have port facilities in Deception Bay, which is used by Inuit in Salluit and Kangiqsujaq for hunting and fishing. Community members and regional authorities already suspect that the area has widespread

asbestos contamination from Asbestos Hill, and the additional mining and shipping activities of Raglan Mine and Nunavik Nickel increase concerns about Inuit being able to continue subsistence practices after closure. Similarly, when Nunavik-based participants described what the ideal mine closure scenario would look like they described both physical and community characteristics: the site is returned to its pre-mining state, there is long-term environmental monitoring, communities adopt infrastructure and materials from the mine, former employees have transferable skills, and the community has a sense of ownership and pride in closure outcomes.

A common theme across most interviews was the separation between an older, problematic generation of mines and a new, socially responsible, and technologically sophisticated generation of mines. Participants categorized Asbestos Hill as an old mine that operated and closed before the Mining Act and Environmental Quality Act were adopted, before closure plans and financial securities were required, and before IBAs and land claim agreements guaranteed benefits and protections for communities. The older generation of mines that operated before the 1990s did so in a regulatory landscape that facilitated development without concern for environmental and human impacts. By contrast, participants identified Raglan Mine and Nunavik Nickel as being part of the newer generation of mines that are operating within a system that ensures humans and the environment are protected through strict health and environmental standards, “polluter pays” laws, up-front financial securities, greater environmental monitoring, and a political landscape that empowers northern territories, regions, and peoples. However, despite the belief that we have entered a new age of socially responsible mining, the region continues to discover new abandoned exploration sites. One participant explains,

We find sites that should not be there at all because they are new. You know by looking at the tools and equipment and just the camps themselves it probably dates to the 2000s ... These people should have cleaned up their materials, according to the Mining Act, and should not have left anything behind. (Interview #6)

Thus, despite trust in the existing regulatory system and a belief that governance has improved significantly in recent decades, there still appear to be problems. This quote points to possible challenges with enforcement, as even in this new era of responsible mining some companies will still not act in the best interest of the region if they are unlikely to suffer consequences.

4.3.3. Avenues for Community Engagement

Both provincial and regional governments require community engagement between mine companies and Indigenous communities, although this is typically limited to the early stages of a project's life. The JBNQA recognizes the special status and rights of Nunavimmiut which entitle them to a level of involvement over and above the consultation and representation mechanisms to which the general public of Québec is entitled (Québec, 1985). However, the land regime established by the JBNQA also does not specifically require community engagement on Category III lands, which make up 85% of the region. This does not mean Nunavimmiut and regional governments have no ability to be involved with developments occurring on Category III lands, but that those requirements come more through IBAs, industry good will, and the recommendations of the KEQC than from any specific government regulation. Projects occurring anywhere in Nunavik regardless of land category must go through an ESIA, and through that process the KEQC can make recommendations to the province and set conditions for the company that dictate how it should engage with communities (Interview #6). Although KEAC and Makivik do not have regulatory or decision-making power, they do put pressure on industry and government to influence decision-making. Community members in the Northern Villages

can bring any concerns to Makivik or KEAC and those organizations can provide advice and/or bring these concerns to other governing bodies or the companies themselves (Interview #4).

Community-engaged mine closure planning, however, is not explicitly required by any level of government. The most recent amendment of the Quebec Mining Act in 2013 now requires mining companies to establish a joint company-community committee that “must be established within 30 days after the lease is issued and must be maintained until all the work provided for in the rehabilitation and restoration plan has been completed” (Quebec, 2020), pointing to positive improvements in provincial requirements for community-engaged closure planning. The purpose of this committee is to ensure community involvement of all aspects of the project, and the requirement that it exist until after remediation has been completed means that it is more likely now that communities will be involved in planning for or assessing closure outcomes. However, provincial policies and regulations do not offer much specific guidance for *how* communities should be engaged, especially for closure planning, or what issues should be addressed in this company-community committee. Similar to the absence of clear guidelines of addressing socio-economic impacts in closure, connections are scarcely made between community engagement and closure planning in the regulations. When asked about avenues for community engaged closure planning, the MELCC referred only to the ESIA and the role of the KEQC and community consultation in that process, and did not mention closure at all in its answer (Interview #15).

For current mines in the region, closure planning with communities has largely been limited to the activities of the Raglan Mine Closure Sub-committee, an initiative which came from the company itself and was not a requirement of any government. This committee may influence the practices of other companies. One participant explained that Canadian Royalties

(operator of Nunavik Nickel) seems to follow the actions of Raglan Mine, and that when Makivik submits a proposal or request to the company based on its experience with Raglan Mine, Canadian Royalties will quickly accept it without issue (Interview #1). Participants also suggested that a similar closure committee for Nunavik Nickel be established so that communities can have the same level of involvement in closure planning as they do now with Raglan Mine through its closure sub-committee.

The community engagement strategies between Raglan Mine and Nunavik Nickel appear to be quite different, despite the former's positive influence. In speaking about the relationship between regional authorities, communities, and the two mine companies, many participants explained that Raglan Mine communicates more effectively and consistently than Canadian Royalties. Some said that Canadian Royalties provides relatively less information to authorities and communities about their operations than Raglan Mine, and others said there was a complete lack of communication. One participant had coordinated with Raglan Mine on many occasions and explained that they have provided in-kind support for some regional projects despite having no obligations to assist the region in this way (Interview #6). Based on interviews with Raglan Mine and Nunavik Nickel employees, Raglan Mine's strategy for community engagement is focused on a two-way exchange of information between company and community while Nunavik Nickel's engagement is limited to providing information to communities. The former is a two-way exchange, while the latter is only one-way. The IBAs for both companies mandated a steering committee for the full existence of the mine's life that meets at regular intervals and has members from all IBA communities and the company. Thus, there are mechanisms to ensure ongoing engagement with communities. However, much of the work that Raglan Mine does appears to go beyond the minimal requirements of regulations and their IBA. For instance, the

Raglan Closure Sub-committee is not legally required but was deemed necessary by the company and community members who expressed the need to know more about their tailings management strategy (Interview #5).

Participants cited several challenges to successful community engagement in closure planning. These include trust issues stemming from Asbestos Hill and the industry's tendency to avoid speaking honestly about uncertainties and risk (Interview #7). One participant explained that fluctuations in the financial well-being of a company can also impact how frequently and effectively they engage with communities (Interview #5). Most often, participants spoke of the limited community knowledge about closure and its possible negative impacts. Recent research done by another TERRE-NET student found this same result within the communities: individual participants did not have a lot of knowledge about mine closure and its possible impacts, and so planning for closure with communities may be challenging (Potvin, 2018).

The region only has one previous example of closure to draw from (Asbestos Hill), and the issues associated with exploration and operations are at the forefront of people's minds, while closure is much easier to forget about. Both Nunavik Nickel and Raglan Mine are currently expanding operations, and countless mineral exploration companies come to the region to take samples and talk to communities every summer. Ensuring Nunavik residents are benefiting from employment and training and that the environment is being adequately protected takes priority (consciously or unconsciously) over long-term planning for the future closure of those sites. One is a clear immediate need, while the other is more easily forgotten about or thought to be something that can be dealt with at a later date. Future-oriented thinking in general was identified by participants as being a major challenge in closure planning. Raglan Mine, for example, is not expected to close until at least 2041. One participant explained,

My children's kids might be the ones who have to close the mine, but my mind hasn't practiced thinking that out, what that entails. I think that's an exercise we need to always keep. Much like an extinguisher you always keep handy in case of a fire, I think we need to have that train of thought of saying, 'okay the mine is closing, what does that mean?' (Interview #2).

Assuming the dates in their most recent closure plans are accurate, Nunavik Nickel will likely close much sooner than Raglan Mine unless significant new ore bodies are found. Nunavik Nickel could close between two and six years from now. So, while thinking 20 years into the future for Raglan Mine's closure can be challenging, there are also much more immediate planning needs for Nunavik Nickel. One participant acknowledged the limited information residents and regional governments have and closure, and explained that that lack of knowledge, combined with its inevitability, can feel overwhelming or defeating, making it difficult for officials to know where to begin (Interview #13). Thus, the lack of knowledge about closure can perpetuate a lack of regional planning.

Despite these challenges and a lack of clear guidance coming from government, interview participants stressed that community involvement in closure planning is important and worth pursuing. Most often, participants stated that closure-specific community engagement would be helpful for increasing awareness about the realities of closure. By participating in the process, companies learn from Inuit what they want from closure and Inuit learn about closure and remediation. If there were more closure-specific engagement activities happening in the region, community members would perhaps become more aware and motivated to participate in closure planning. Some participants similarly explained that community engagement should involve site visits so Nunavimmiut can more fully comprehend the scale of these sites and their tailings. Community engagement, particularly with Elders, hunters, and Landholding Corporations, was also seen as critical for restoring the site as close as possible to its pre-mining

state, with healthy terrestrial and aquatic ecosystems to protect hunting, fishing, and harvesting activities. Lastly, it was recognized that participating in planning as well as the actual remediation work can provide work experience and help those involved find future employment. Local people are hired each year to assist with the abandoned mine site cleanup and one participant expressed that it was valuable for both those participating (who made an income and could put the work on their resume) and those organizing the cleanup (who benefitted from community members' knowledge about the local environment) (Interview #6).

4.4. Discussion

The results outlined in this chapter point to some key shortcomings in closure governance in Nunavik, namely the overconfidence in incomplete policies and overreliance on impact assessments and job creation for mitigating socio-economic risks. Through interviews and a review of relevant mining policies it is clear that the provincial government retains most of the power to regulate closure, and regional authorities gain much of their influence through the ESIA process and by playing an advisory role to the province. There appears to be no authority, program, department, or individual in Nunavik that is wholly responsible for ensuring the region's mines are planning for socio-economic mine closure with their respective communities. Despite the limited official power of regional authorities, interview participants expressed confidence in modern closure regulations as well as their relationship with the provincial government. They cited the ESIA process and financial security requirements as examples of good closure governance, but acknowledged a lack of knowledge about mine closure, fluctuations in the economic wellbeing of companies, difficulties with future-oriented thinking, and trust issues as challenges that will need to be overcome. The high level of confidence in provincial policies and impact assessments, though, points to some problems which may explain

the shortcomings in the Raglan Mine and Nunavik Nickel closure plans observed in Chapter Three.

Interview participants frequently described two “generations” of mining, where companies operating in the 20th century were free to act in whatever way they wanted regardless of the human and environmental impacts, while companies today operate in a rigid regulatory framework that better protects people and the environment. Yet this distinction, and the confidence expressed by interview participants in closure regulations, obscures the challenges that remain, such as the limits of financial securities and post-closure monitoring, poorly enforced environmental regulations, and the fact that new mines are just as susceptible to collapsing mineral markets (Bebbington et al., 2008; Dance et al., in press). In reality, mine closure governance is inconsistent across the North and even between different companies in the same region, and mines today continue to produce closure-related problems (Dance et al., in press)

Financial securities and post-closure monitoring are particularly problematic. Financial securities are required to be paid by mine companies to their respective territorial or provincial government to guarantee the availability of funds in case the company is not able to fulfill its remediation duties. Specific requirements differ between jurisdictions, but in Québec the amount must cover the full cost of expected remediation work for the site, including the cost of necessary studies, land rehabilitation, and environmental characterization studies (Ministère de l'Énergie et des Ressources naturelles, 2017). Most often, these securities are credit guarantees from banks, and is held by the province until the company has relinquished the site or proven itself unable to complete the remediation work. As explained in Chapter Two, these securities rarely cover the

real costs of remediation and do not account for the perpetual care often needed (Dance, 2015; Office of the Auditor General of Canada, 2002).

Post-closure monitoring requirements, too, do not account for cumulative impacts or the long-term care that is often needed, do not extend to areas outside of the mine site, and in cases of abandonment can be underfunded due to the shortcomings of financial securities and cutbacks to government programs (CCSG Associates & MiningWatch Canada, 2001; Kuyek, 2011; Raffensperger et al., 2011). For a company to relinquish a mine site back to the government, Québec requires a minimum of ten years of post-closure monitoring with five consecutive years meeting environmental quality standards (Ministère de l'Environnement et de la Lutte Contre les Changements Climatiques, 2012). The duration of this monitoring is relatively insignificant when considering the perpetual nature of some mine waste (Hudson-Edwards et al., 2011), especially acid-generating wastes such as those possibly found at Raglan Mine and Nunavik Nickel.³⁵ Potentially toxic mine waste often remains on site forever along with the risks that it poses to the environment and nearby communities. Questions of post-closure monitoring and perpetual care were not discussed much in interviews, as the focus was primarily on community engagement and socio-economic aspects of closure, but these are important issues that the region will inevitably have to face when Raglan Mine and Nunavik Nickel close. If authorities in Nunavik wish to see sustainability and community well-being centered in mine closure planning, it is perhaps unwise to assume that the modern changes to mine closure governance cover a wide enough scope of issues and adequately protect communities from major environmental, social, and economic disruptions.

³⁵ The Raglan Mine closure plan indicates that their tailings are considered acid generating, and the Nunavik Nickel closure plan states that at least some waste on site has acid generating potential.

The KEQC, through the ESIA process, plays the most direct role in regulating mine closure in the region, but impact assessments are front-end processes that may not adequately address closure. The preliminary closure plan is also assessed in ESIA, but it remains a distinctly front-end process and may not pay adequate attention to the closure phase of the mine's life. The emphasis on impact assessments as a primary means of protecting people and the environment from potentially harmful projects is part of a larger issue of prioritizing development and operational issues while neglecting to support downstream socio-economic monitoring and community engagement. Indeed, the time between an ESIA and closure can be decades, so the information about the mine site and affected communities presented in the impact assessment may not reflect what closure will actually look like as the project evolves and the community changes.

There are also few mechanisms for follow-up or enforcement. The main method for follow up between the ESIA and closure planning is the requirement that companies resubmit their closure plan to the KEQC and MELCC every five years. In our interviews, KEQC members acknowledged some of the negative impacts that communities may experience when Raglan Mine and Nunavik Nickel close, such as environmental contamination and subsequent threats to Inuit food security, and the loss of wages, benefits, and profit sharing to support community development. It was clear that KEQC members have a relatively complete understanding of mine closure impacts. However, although the KEQC reviews each closure plan and can set conditions for all phases of the mine's life, the plans for both Raglan Mine and Nunavik Nickel are extremely limited with regard to community engagement, addressing community concerns, and mitigating socio-economic impacts. As detailed in Chapter Three, neither closure plan makes any mention of community knowledge or explicitly addresses community concerns in their closure

plans. They also do not acknowledge or present plans to mitigate any negative socio-economic impacts. Of the ten closure plans examined for Chapter Three, these were two of the shortest and least detailed regarding the socio-economic aspects of closure, community engagement, and use of community knowledge. The KEQC does important work in protecting the social and environmental wellbeing of Nunavik, but the shortcomings of these closure plans seem to go unnoticed or unaddressed within their review. It is not clear why this is happening, although it is likely unintentional given the mandate of the KEQC and the tendency for mine closure globally to be a neglected and underappreciated phase of the mining lifecycle. Regardless of intention, the regular review of closure plans does not appear to be producing good outcomes.

These findings echo Vivoda, Kemp, and Owen (2019), who refer to the diminishing of attention paid to socio-economic aspects of closure as a mine moves through its lifecycle as “an imbalance between the ‘enabling’ and ‘restrictive’ elements” (p. 3) of regulatory frameworks. These authors argue that a balance is needed between incentivizing companies to operate in a particular place and restricting how they operate in order to protect society and the environment. In their examination of this imbalance in Australia, they found that requirements for the socio-economic aspects of mine closure were stricter during the early approval phases, and much weaker after the approval process. The limited restrictive elements of closure governance in Nunavik occurs alongside enabling incentives to promote mineral development in northern Québec. The massive development agenda of Plan Nord came with substantial government investments to promote resource extraction in the North (Rodon, 2017; Rodon & Schott, 2014). While Plan Nord emphasizes sustainable development, it does not address or contribute to the closure and remediation of projects being incentivized by this program. Provincially, the primary objective of the body most responsible for regulating mining and mine closure, MERN, is

ultimately to promote and support responsible mining. Within Nunavik, too, there are more mechanisms for enabling mining than restricting it. The Nunavik Mineral Exploration Fund (NMEF) trains Nunavik Inuit in mineral exploration and “assists the mineral exploration industry in the realization of different projects” (Séguin & Larivière, 2011, p. 8). Creating space for Nunavimmiut to participate in and profit from mineral exploration in the region helps keep some of the money generated by these companies in the region and provides valuable skills training, but there is no similar mine closure fund to train Inuit in mine remediation, support closure-related Inuit enterprises, and promote the responsible and sustainable closure of the mines that may result from those exploration activities.

This imbalance between enabling and restricting elements is evident in the case of the Schefferville (located in the Québec-Labrador Trough) mine closure in the 1980s. During the region’s development phase, provincial and federal governments “spent more time and effort merely facilitating private sector activity in the north than actually planning for a long-term future” (Archer & Bradbury, 1992, p. 190). Governments chose to support a single industry instead of invest in the sustainability of the community, and when the mine closed Schefferville struggled to maintain other industries, public services, or a stable population (Bradbury & St-Martin, 1983). Since abandonment, the site has received very little environmental remediation and “acts as an incessant material reminder of three decades of intensive land and resource exploitation” for the Innu and Naskapi (Boutet, 2015, p. 181). This example also reaffirms a point made earlier, that despite the distinctions made between “new” and “old” mining, many of the same issues related to long-term planning and sustainability remain.

Other than environmental impacts, interview participants most often focused on employment when discussing how mining and mine closure can impact communities. They

brought up how the loss of employment and contracts will negatively affect the communities when the mines close, but also spoke positively about the number of Inuit currently employed by the two mines. Both the Raglan Agreement and Nunavik Nickel Agreement have Inuit hiring quotas, which was also talked about positively. In Raglan Mine's promotional materials, the number of Inuit employees is frequently presented as a point of pride and evidence of corporate social responsibility and their contributions to sustainable development in the region.

Government development agendas like Plan Nord, too, focus heavily on the creation of jobs during operations as a means of sustainable development in resource industries. But while increased income is certainly a benefit for communities it also contributes to an increased level of risk when a mine closes. The more reliant a community is on mining, the more likely that community is to experience negative impacts when that mine closes and local employment and contracts end (Bainton & Holcombe, 2018; Boutet, 2015; Boutet et al., 2015; Keeling & Boulter, 2015; Skeard, 2015; Southcott, Abele, Natcher, & Parlee, 2018). More diverse economies can help communities become more resilient to mine closure by ensuring that no one industry is responsible for all or most of a community's employment and economic activities.

4.5. Conclusion

Through semi-structured interviews and a review of provincial and regional policies and guidelines, this chapter sought to understand how mine closure in Nunavik is governed, what knowledge and experiences inform mine closure governance, and what avenues exist for community-engaged planning, with particular focus on the socio-economic aspects of closure. The results of this work show that there are significant gaps in mine closure governance, and regional authorities have limited power to implement their own regulations and enforcement mechanisms. The province has extensive environmental regulations for mine closure to ensure

post-closure environmental quality, but the socio-economic aspects of closure are mostly absent. There is no clear guidance for how mine companies should be planning for and mitigating these critical elements of mine closure. Community engagement in closure planning, too, is weakly addressed in policy. This means that companies can meet provincial requirements without involving impacted communities in closure planning.

Asbestos Hill and the abandoned exploration site cleanup project were brought up frequently in interviews as examples of poor practices that should not be repeated. These examples contribute considerably to participants' knowledge about the varied impacts of mine closure and abandonment, but also contribute to a common narrative where old mining and new mining are distinct, with the latter of which is believed to be occurring within a regulatory framework that will protect the environment and Nunavimmiut. This separation ultimately leads to trust being placed in closure regulations that have a plethora of gaps and limitations. Believing that this new generation of mining is without flaws closes regional political actors off to considering how mine closure governance can continue to expand to include a wider range of issues not otherwise represented in policy.

These results also demonstrate the shortcomings of a reliance on ESIA processes to address mine closure. ESIAs are a front-end process, though. They occur early on, perhaps decades before the mine enters closure. There are no clear mechanisms for following up and ensuring the company is appropriately planning for any negative impacts from closure identified by the ESIA. The shortcomings of this process are exemplified by the closure plans for Raglan Mine and Nunavik Nickel, which do not clearly address community concerns or present any plans for mitigating negative socio-economic impacts (see Chapter Three results). After an ESIA, there are fewer restrictive elements for addressing socio-economic impacts and ensuring

community engagement in closure planning to balance the enabling incentives created by both regional and provincial authorities. Plan Nord and the NMEF work to facilitate mine exploration and development to bring greater economic gains to the region. Job creation for Nunavimmiut through mine development is framed as contributing to the sustainable development of the region.

These sustainability agendas do not account for the inevitable post-closure loss of jobs, investment, tax revenue, and royalties, nor do they acknowledge the potentially harmful impacts that mining and exploration can have on land-based food systems and cultural/social systems. Mine development continues to be the primary strategy for bringing development and prosperity to the North, but given the harsh environments, shifting political landscapes, remote locations, lack of infrastructure, and fluctuating mineral markets it is perhaps naïve to believe that there will always be a new mine for workers to transfer to after the closure of another (Cater, Carney, & Keeling, 2018). Furthermore, even a consistent stream of new mines across the North would not address the loss of royalties and investments that a specific community or region loses when *their* mine closes. Job creation from mine development produces short-term gains that can certainly contribute to a family's economic wellbeing, but it cannot be the only solution proposed.

The Raglan Mine Closure Sub-committee presents a creative solution to many of the challenges in closure planning and gaps in closure governance. It creates a forum for communities to participate in closer planning and works as an open dialogue between parties instead of simple knowledge dispersal from company to community. This ultimately leaves inequalities between companies, though, as it is a company initiative not required by any government. Raglan Mine may be working creatively to ensure closure outcomes meet the needs

of their IBA communities, but Nunavik Nickel or other future mines are not obligated to do the same. If communities are going to be consistently and meaningfully included in the process of planning for the future of sites operating on their traditional territories, government must create appropriate regulatory frameworks to require it, instead of leaving companies to decide for themselves if they have the time, resources, and motivation to partner with communities in this way. Political actors must engage in creative, future-oriented thinking to guarantee that closure is governed effectively to not just protect the physical environment but contribute to the long-term, post-closure sustainability of Nunavik communities and their traditional lands.

Strengthening regional authority over closure planning (and mineral development broadly) is one possible avenue for improving outcomes. Built into the mandates of the KRG, KEAC, KEQC, and Makivik is the protection of Nunavimmiut health, well-being, and futures; through the interviews it was clear that the employees of these governments have a wealth of knowledge and insight about the possible impacts of closure on Nunavik. These governing bodies have a more direct line of communication with the Northern Villages than the Québec Government, and Nunavimmiut occupy many of positions within these organizations. As discussed in Chapter Two, communities and their local and ethnic governments are experts in their own lands, people, and cultures, and so giving more control to regional governments to make decisions and plan for the future of the region can better guarantee that those plans will meet the unique needs of Nunavik residents.

CHAPTER FIVE: CONCLUSION

Mine closure has come a long way from the common practice of abandoning sites without much clean up or stabilization. The mines that closed throughout the 20th century have left legacies of environmental contamination, dramatic landscape and ecological change, economic decline, social disruptions, and complex cultural impacts stemming from those environmental, economic, and social changes (Bainton & Holcombe, 2018; Bridge, 2004; Cohen, 2017; Keeling & Sandlos, 2016, 2017; United Nations Environmental Programme, 2001). Today, strict environmental regulations and ever-evolving technologies and technical expertise have resulted in safer and longer-term remediation solutions. Modern land claims agreements, Indigenous activism, and pressure for industry to obtain a social license to operate have additionally resulted in greater control by Indigenous peoples over mining activities (Dance, 2015; Hodgkins, 2018; Otto, 2009; Rodon, 2018). There are still lessons to be learned, though, and mine closure continues to suffer from a lack of specialized attention that addresses aspects of closure not accounted for by physical environmental remediation (Bainton & Holcombe, 2018; Beckett & Keeling, 2019; Laurence, 2006; Stacey et al., 2010).

Given the many possible impacts of mine closure, differing understandings of remediation, environmental health, and risk between parties, and the unequal power held by academics and engineers versus the communities that experience mine closure first hand, it is crucial that companies and governments make space for those communities to participate in decision making about closure. Planning for the socio-economic impacts of mine closure requires long-term engagement with many different groups within a community, beginning as early in the mine's life as possible (International Council on Mining & Metals, 2019b; Stacey et al., 2010). This engagement should ensure that community members have a role in developing

closure goals, visions, success criteria, and post-closure land uses. (International Council on Mining & Metals, 2019b). Involving communities in closure planning can result in a greater scope of issues being addressed, more nuanced and complete understandings of risk and contamination exposure pathways, and greater innovation in designs and managements strategies (Edwards & Maritz, 2019; Fidler, 2010; McKay & Johnson, 2017). Developing social and economic transition plans, too, can help communities move away from mineral-based economies, not to refuse future mine development entirely but to ensure that northern economies are sustainable with or without the presence of boom-bust resource industries (Costa, 2015; International Council on Mining & Metals, 2019b; Laurencont et al., 2019; Veiga et al., 2001). This kind of community engagement, that centres the needs, values, expertise, and concerns of the communities and plans for the meaningful and practical mitigation of negative closure impacts, requires considerable time and dedication, and must be continuously attended to (Xavier, 2013). Without long-term community engagement and a dedication to protecting communities, mine closure risks repeating past mistakes and producing a new generation of harmful legacies.

Much of the literature on mine closure focuses on documenting these past mistakes, which has been helpful for developing strategies for future success. This thesis instead sought to illuminate current mine closure practices and explore how companies and governments are working to ensure that the next generation of closures is set up for success. I used a combination of document analysis, semi-structured interviews with key informants, and participant observation to understand company mine closure practices across five northern regions and government processes for controlling mine closure in Nunavik, Québec. I wanted to know what those in positions of power are doing to protect northern communities from the many well

documented negative impacts of closure, while keeping in mind the historical context of mineral development, mine abandonment, and settler colonialism in the North. Importantly, I also wanted to generate knowledge that was beneficial for the Raglan closure sub-committee as they work towards producing a new closure plan that better meets the needs of Salluit and Kangiqsujuaq. It was my primary objective to answer questions already raised by sub-committee members: How can community knowledge be integrated into a closure plan? How can a closure plan do more than meet basic environmental remediation requirements? And what resources and pathways exist (or could in exist in the future) in Nunavik to facilitate the same level of engagement with other companies operating in the region?

5.1. Summary of Results

In Chapter Three, the analysis of ten closure plans from Yukon, NWT, Nunavut, Nunavik, and Nunatsiavut demonstrated that mine companies are inconsistent in their explanations of community engagement methods as well their application of knowledge gained from that engagement. Often descriptions of community engagement were not specific to closure, or community engagement was only spoken about in the future tense without detailing any past or ongoing engagement strategies and outcomes. Descriptions of community engagement were vague and provided little useful information that demonstrates that communities have access to closure planning. The social, cultural, and economic impacts of mine closure as also inconsistently acknowledged, with some companies not referring to them in any capacity. Most often, socio-economic aspects of closure are only briefly and vaguely present in closure plans, perhaps being mentioned once early in the document without any subsequent explanations or practical strategies. In other cases, closure plans do not mention socio-economic impacts at all, meaning the document is entirely technical instructions for the mine site without

addressing any issues facing impacted communities. Across all ten documents, virtually no concrete plans are proposed to mitigate the socio-economic aspects of closure. The subsequent review of regional closure policies and guidelines shows that differences in closure governance account for many of these inconsistencies between jurisdictions. Even within the same region/territory, though, there are differences in the quality and detail of closure plans, meaning company closure practices also play an important role.

Interviews with provincial and regional authorities in Nunavik and a close reading of policies and guidelines in Chapter Four revealed similar themes. Provincial closure regulations focus predominantly on physical remediation while the socio-economic aspects of closure are neglected, and community engagement is not required for closure planning. Both these issues should ideally be accounted for through the ESIA process and subsequent closure plan reviews by the KEQC, but neither are explicitly required by any regulations for the closure and remediation phases of a mine's life. Other than the KEQC, regional authorities like the KEAC and Makivik Corporation hold little formal decision making power and thus cannot implement or enforce their own mine closure regulations, but interview participants expressed confidence in their relationship with the provincial government and their ability to influence policy decisions and company practices. Much of the knowledge that regional authorities have about remediation comes from the example set by Asbestos Hill as well as the abandoned exploration site cleanup project. Asbestos Hill in particular has influenced participants' attitudes and beliefs about mine closure, although it is also contributing to a belief that poor remediation is a phenomenon of the past that is unlikely to happen again in the 21st century. Lastly, because community engagement in closure planning is not explicitly required by provincial regulations, the strategies used by Nunavik Nickel and Raglan Mine differ considerably.

The mine closure plans and government policies and guidelines reviewed in Chapter Three and Four confirmed observations made elsewhere in literature, that mine closure planning focuses more on physical remediation while the social, cultural, economic, ecological, and historical challenges are frequently left out of the scope of remediation (Bainton & Holcombe, 2018; Beckett & Keeling, 2019; Cohen, 2017). In Nunavik, regional authorities acknowledged the complex ways that closure can impact more than just the physical environment contained within the borders of the mine property, most notably the far-reaching economic impacts of closure were mentioned. Unfortunately, this knowledge is not reflected in mine closure policies or guidelines or the closure plans of the two mines operating in the region.

Mining policies across the North, to varying degrees, acknowledge socio-economic impacts of mining and require companies to ensure communities are benefiting and being protected from the project. However, connections are rarely made between socio-economic considerations and *closure* specifically. Instead, clear regulations typically only exist for the construction and operational phases of the mine's life, leaving companies with little guidance for what kinds of issues they must account for in closure planning. In Nunavik, interview participants frequently referred to the ESIA process, which only occurs at the beginning of a mine's life, as evidence that community engagement and socio-economic impacts are being accounted for in mine closure. It is true that impact assessments should account for the possible impacts of closure and present solutions or alternatives to mitigate those impacts, but the closure plans for Raglan Mine and Nunavik Nickel do not reflect this. These two closure plans do not acknowledge any socio-economic impacts that Salluit and Kangiqsujuaq may experience. Thus, either the ESIA process is not adequately accounting for these aspects of closure or there are no follow-up mechanisms to ensure that the impacts identified in the ESIA are making it into

closure plans. This is despite the fact that the closure plans for both these mines are updated and resubmitted to the KEQC every five years for additional review. All of the mines represented in Chapter Three would have similarly gone through some kind of impact assessment, and yet all of their closure plans neglect the possible socio-economic impacts to nearby communities to some degree.

Vague or non-existent attention to the socio-economic impacts of mine closure are not unique to Nunavik or Québec, but in fact reaffirm the observation made elsewhere that passive government approaches to socio-economic mine closure planning is common internationally (Xavier et al., 2015). Weak, ambiguous, or absent regulations surround the scope, objectives, mitigation strategies, and measurements for success in closure planning; thus, companies are often left to make their own decisions about what should and should not be addressed.

When companies do attempt to address socio-economic aspects of closure, it is often limited to providing industry-specific technical training during operations instead of more rounded education that diversifies an employee's skillset (Xavier et al., 2015). Job creation and technical training have valuable short-term benefits but must be balanced with the risk of overreliance on mining in order to contribute to the long-term, post closure health and wellbeing of a community. As Abele (2018) explains, "the mineral exploitation 'pillar' cannot hold up the society on its own" (p. 180). Bainton and Holcombe (2018) argue that mine closure itself can provide long-term benefits to communities if adequately planned for, managed, and resourced. "Repurposing infrastructure and mining landscapes, reskilling and redeploying labour, establishing alternative economic opportunities, [and] strengthening local livelihoods and food security" (Bainton & Holcombe, 2018, p. 469) are all possible outcomes that contribute to

sustainable development as opposed to the short-term employment gains that come from development agendas focused on job creation.

Like the socio-economic aspects of closure, other phases of the mine's life have more clear engagement requirements – communities are typically engaged with during impact assessments, IBA negotiations, and some form of consistent communication usually must be maintained throughout operations between the company and community. None of these guarantee that communities are able to voice concerns and have a role in planning and decision-making for closure, though. The absence of policies around community engagement mean that companies can meet consultation requirements while neglecting to involve them in planning for the end of the mine's life. Weak policy also means that closure planning is not equal between companies, as evidenced by the different relationships and strategies for engagement between the region, communities and the two companies operating in Nunavik. The Québec Government's most recent revisions to the Mining Act now require that mine companies establish a company-community committee that lasts from the beginning of the mine's life until post-closure, but there are no requirements that the committee (or communities in general) must have a role in planning for closure. Whether or not community-engaged socio-economic mine closure planning occurs, both in Nunavik and across the North, remains largely dependent on a company's own willingness and initiative

What little community engagement in closure planning is happening also does not appear to result in closure plans that effectively utilize community knowledge. Instead, that knowledge is frequently confined to descriptions of the environment and almost never applied to the technical and engineering aspects of closure, which ultimately reproduces the existing power imbalance between academic and community knowledge. As described in Chapter Two, mine

closure planning is fraught with challenges: it is complex and requires years of careful planning (Stacey et al., 2010); there are different and at times conflicting understandings of environmental and human impacts, risk, and exposure pathways (Haalboom, 2014; Poirier & Brooke, 2000; Sandlos & Keeling, 2016c; Shriver et al., 2008; Tsosie, 2015; Tyrrell, 2006); closure doesn't account for perpetual care, cumulative impacts or the possibility of contamination occurring years after relinquishment (Kuyek, 2011; Raffensperger et al., 2011; Sandlos & Keeling, 2013); and, in cases of abandonment, financial securities collected from companies often do not cover the real cost of remediation, including impacts that occur outside of the immediate boundaries of the mine site (Dance, 2015; Kuyek, 2011). Community engagement can help address many of these issues by allowing communities to come to their own conclusions about what closure and remediation means, what issues are being accounted for, what success should look like, and what kinds of risk are acceptable. Without good, effective closure governance, though, this outcome appears to be unlikely.

All mine sites and communities are unique and require case-specific closure and engagement strategies. Different sites will have special engineering and environmental challenges that will need to be accounted for, and different communities will have different social, economic, and cultural characteristics as well as varying priorities and values. Flexibility in regulations and guidelines is thus necessary to account for these differences. However, as it currently stands, closure policy is leaving room for much more than flexibility between sites and communities. There is virtually no guidance for engagement or socio-economic aspects of closure, which means that much of the closure planning process is being left to the decision-making and good will of individual companies. Some companies will do good work that exceeds minimal government requirements. Based on their closure plans, the owners of the Diavik and

Ekati mines appear to be making an effort to engage with communities and share decision making power in closure planning, and the Mary River closure plan attempts to engage with a much wider set of issues than what is common or required by law. Other companies, for a variety of reasons, will inevitably not make the same kinds of commitments.

Companies across the North have different financial capacities, corporate philosophies, and relationships to communities that result in different kinds of SLOs and IBAs with different stipulations and expectations. The large number of variables, combined with weak or absent regulations for closure planning, has resulted in the high degree of variability in closure plans across the North. In Nunavik, the unclear expectations of government have allowed for the region's two operating mines to have quite different community engagement strategies. While Raglan Mine has recently established the Raglan Mine Closure Plan Sub-committee, which is dedicated solely to collaboratively developing a closure plan with community and regional representatives, Nunavik Nickel has no such committee and interview participants spoke often of the lack of communication between Nunavik Nickel and the region.

The Raglan Mine Closure Sub-committee and other similar groups have the capacity to fill many of the regulatory gaps that exist for mine closure planning. The group is made up of community, regional, and industry members as well as experts in physical and social mine remediation and meet regularly to discuss issues related to mine closure. Other committees and venues exist for community engagement related to mine operations broadly, but this sub-committee is dedicated solely to collaborative planning for closure. Community members are able to voice a wide range of concerns that are typically not accounted for in mine closure policies, which the company can use to improve its closure plan. This sub-committee was also created long before the mine is expected to close, at least 20 years, which allows the company to

begin implementing mitigation strategies early and adjust as necessary as time passes. Independent experts in both physical and social mine remediation regularly provide critical information based on the most up to date research for sub-committee members to apply to Raglan Mine's closure plan. Given the weak regulatory framework for mitigating negative socio-economic impacts of closure, the sub-committee creates an opportunity for community members to plan for their own futures based on their own knowledge and expertise about their communities, cultures, and environments.

The existence of the Raglan Closure Sub-committee, though, does not negate the fact that policy gaps in the regulatory framework for mine closure allow for substantial inequalities between companies. No such closure committee exists for Nunavik Nickel. Raglan's closure sub-committee also does not mean that the company is immune to the same risks and uncertainties that all mine sites experience, like decreased market prices for minerals or changes in leadership/ownership that could lead to decreased investment in communities and special planning committees and changes in overall engagement strategies. It is also unclear how Raglan Mine will be held accountable to the outcomes of the Raglan Closure Sub-committee outside of the operator's incentive to be a good corporate citizen and retain its social license to operate.

5.2. Recommendations

Overall, mining policies must much more clearly and frequently make connections between community engagement, socio-economic impacts, and the closure phase of a mine's life instead of relying on regulations related to other earlier phases and hoping that they translate to closure planning. Governments must clearly explain the kinds of socio-economic issues that proponents must address in closure planning, as opposed to making vague statement about closure needing to "attain technical, environmental and social objectives" (Ministère de l'Énergie

et des Ressources naturelles, 2017, p. 27) or “provide economic benefits to local communities” (Government of Yukon, 2006, p. 9). Governments should instruct proponents on how to develop social objectives and mitigation strategies for socio-economic impacts with communities to ensure they are protected from negative impacts and are left with lasting gains. Similarly, governments must develop a clear framework (albeit a flexible one) for community engagement in closure planning that makes it clear that proponents must begin planning for closure with impacted communities early in the mine’s life.

Increasing regional authority over mine governance and giving regional governments greater formal power to make decisions and develop and enforce regulations could lead to more appropriate and effective closure planning in the region. The results of Chapter Four showed that interview participants working for regional governments could point to more possible negative socio-economic impacts than what is accounted for in provincial policy or the closure plans of Raglan Mine and Nunavik Nickel. These authorities are employed largely by people living in Nunavik who have a deep understanding of the region, its strengths, and its challenges. This would likely require greater access to resources and human capacity given the complex and expensive nature of policy development, implementation, and enforcement, which can be difficult to come by for small northern governments. Finally, closure planning would benefit from communities and governments both having greater access to information about closure, what it entails, and the ways that communities elsewhere have been impacted. The necessity to increase a community’s knowledge about closure is one important reason why closure planning must begin as early as possible.

5.3. Future Research Areas

The impact assessment process and IBA contents are two areas of interest that were outside of the scope of this research, but play an important role in closure planning. An examination of the impact assessment process, impact statements, the conditions set by the KEQC or other government organizations in the North, and how those compare to respective closure plans would contribute to a more complete understanding of the role of impact assessments in regulating mine closure. The KEQC and ESIA process were mentioned frequently by interview participants in their explanations of how mine closure governance works in Nunavik, and many of the closure plans examined in Chapter Three referred to their impact assessments. It is clear that impact assessments are currently understood to be a primary means of regulating mine closure in the North, especially with regard to community engagement and socio-economic impacts. Whether or not the impact assessment process is adequately accounting for closure and all of its complexities still remains unclear. If they are, then why are these issues not making it into company closure plans? There must be mechanisms to ensure that (1) impact assessments account for the unique impacts related specifically to closure, and (2) those impacts related to closure are then carried over into the closure planning process to be mitigated in measurable, trackable ways.

Similar questions can be asked about IBAs and the negotiations that lead to them. Do these private agreements account for closure in any capacity, and if so what kinds of issues are being addressed or left out? If IBAs do have requirements related to closure and remediation, what mechanisms (if any) exist to ensure that they are being translated into closure plans. Given regulatory shortcomings in closure planning, private agreements can be used to ensure

communities have their voices heard. Unfortunately, IBAs are typically confidential, and so evaluating their contents may be difficult or impossible in many cases.

Knowledge about mine closure planning would also benefit from future research that compares mine closure plans with actual post-closure outcomes once the mine site has been relinquished. While certain mine closure plans examined in Chapter Three appeared to engage with community knowledge more effectively and genuinely, it remains to be seen if that leads to real, practical improvements to closure.

5.4. Conclusion

Mine closure and remediation in northern Canada continue to be framed as a physical issue of cleaning up the site and containing waste despite a substantial body of literature that points to more complex and interconnected social, economic, and historical issues. Given the history of settler colonialism and mine abandonment in northern Canada, it is crucial that closure and remediation planning centres the needs, values, and priorities of communities. By doing so, companies, governments, and communities can collaboratively produce a new generation of mine closure with positive outcomes for the people inheriting the post-mining landscape.

This thesis illustrated that despite claims by government and industry that technological innovations and changing attitudes about social well-being, sustainability, and Indigenous rights, mine closure planning is falling short of best practices. Government policies and guidelines have largely neglected to account for community engagement and socio-economic impacts in closure planning, and the mine industry has poorly and inconsistently filled those gaps. The International Council on Mining and Metals' Integrated Mine Closure guide (2019b) stresses the importance of long-term engagement and the integration of social objectives in closure, but these principles are not translating into actual closure planning. Companies are not involving communities in the

development of their closure plans early in the mine's life, and they are not accounting for issues outside of the physical remediation of the site. Without clear explanations for how companies can implement these principals or any enforcement mechanisms from government, best practice guidelines remain more of a theoretical ideal than a helpful tool for practitioners. This leaves corporate social responsibility and SLOs as the main motivator for companies to engage meaningfully with communities and invest in community sustainability, which leaves these important aspects of mine closure planning up to the highly variable preferences and motivations of individual companies.

As a result of shortcomings in provincial policies, international guidelines, and industry practices, mine companies and governments risk reproducing past failures. Unemployment, social dislocation, new and costly abandoned sites (like the Jericho and Wolverine mines, abandoned in 2012 and 2015 respectively), and continued distrust in the industry are all possible outcomes for Canada's current generation of mines. The presence of Indigenous peoples and histories of settler colonialism in the North mean that the impacts felt by mining and mine closure are unique from those felt by southern Canadians or non-Indigenous populations elsewhere in the world.

However, the insights gained from this research are applicable globally. The ICMM presents Canada as a leader in many of the good mine closure practices included in its best practices guide (ICMM, 2019), and the Canadian Government regularly boasts of its global leadership in mine remediation (see Government of Canada, 2019; Government of Canada, 1996). Despite this common belief that Canada is a global leader, though, there remain significant gaps in both government regulations and industry practices in mine remediation within the country. As this thesis has shown, communities are not consistently included in mine

closure planning, nor are they adequately protected from the often long-term, harmful impacts frequently caused by mine closure. Canadian mining law is also comparable to those found in other, similarly developed nations like the USA, EU, and Australia in terms of both environmental regulations and community and Indigenous engagement (Blommerde, Taplin & Simitkuaq, 2015; Garcia, 2008; Kabir et al., 2015; Otto, 2009), meaning there are many countries outside of Canada that can benefit from the insight provided by this research. Being inclusive of more voices, grounding closure planning in the real context of where operations are taking place, and setting clear, explicit goals for mitigating negative socio-economic impacts are goals that all mines and mining communities will benefit from.

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APPENDICES

Appendix I: Interview Consent Form



Informed Consent Form for Research

Title: Arctic Mine Closure Strategies and Company-Community Relationships: Examining the Application of Inuit Knowledge in Closure Planning in Nunavik, Québec

Researcher(s): Miranda Monosky, MA student, Department of Geography, Memorial University of Newfoundland, mnmonosky@mun.ca, 604 997 6679

Supervisor(s): Dr. Arn Keeling, Professor, Department of Geography, Memorial University of Newfoundland, akeeling@mun.ca, 709 864 8990

You are invited to take part in a research project entitled “*Arctic Mine Closure Strategies and Company-Community Relationships: Examining the Application of Inuit Knowledge in Closure Planning in Nunavik, Québec.*”

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. Please take time to read this carefully and to understand the information given to you. Please contact the researcher, Miranda Monosky, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:

I am a graduate student in Geography at Memorial University of Newfoundland. As part of my Master’s thesis, I am conducting research under the supervision of Dr. Arn Keeling, which is funded through the Natural Science and Engineering Research Council of Canada (NSERC). My research aims to understand the regional and provincial regulatory framework that controls mine closure plans and processes in Nunavik, as well as standard practices within the mine industry for producing mine closure plans and engaging with Inuit communities.

Purpose of Study:

The purpose of this research is to understand the challenges and opportunities for incorporating Inuit knowledge into mine closure plans in Nunavik. Given the negative outcomes of mine closure that have been documented in the Canadian North, it is important to understand what is being done to ensure community involvement in the process of mine closure planning and where there is room for improvement. My goal is to understand what knowledge government and industry has on mine closure planning and its impacts, how they are working towards mitigating these impacts, and how they are making space for Inuit participation in mine closure planning.

What You Will Do in this Study:

If you wish to take part in this research, you will be asked to participate in an interview with the researcher, Miranda Monosky. During the interview, you will be asked questions about your knowledge of mine closure impacts and risks, mitigation strategies, and Inuit engagement in mine closure planning.

Length of Time:

The length of this interview will vary depending on the depth of discussion and your personal knowledge about the topics being discussed. It is expected, though, that interviews will take approximately one hour.

Withdrawal from the Study:

You may stop the interview for any reason at any time. Your decision to stop the interview or remove any of your responses will not negatively impact you or your relationship with the researcher, Memorial University, or other groups associated with this project. If you choose to withdraw, in part or in full, any recordings or notes from the interview will be destroyed.

If you choose to withdraw after the interview has been conducted, you may contact the researcher by phone (604 997 6679) or email (mnmonosky@mun.ca) and your data will be destroyed as soon as possible. You may choose to withdraw your interview until April 30, 2020, at which point the data analysis phase of the research will be completed.

Possible Benefits:

Your participation in this research will benefit:

- a) **The province of Québec and the region of Nunavik.** This research will increase knowledge about mine closure planning processes, which will aid government and industry in developing and improving policies and practices for creating mine closure plans that adequately protect the environment and nearby communities.
- b) **The scientific/scholarly community.** Your participation will help to fill a gap that exists in scholarly research by providing information about the regional political and industry

systems in Québec, and how Inuit are being engaged with in the process of developing mine closure plans.

Possible Risks:

There are no foreseeable physical, emotional, or financial risks associated with your participation in this research. However, should any of the interview questions elicit negative emotions or make you feel uncomfortable you are encouraged to stop the interview.

Confidentiality:

The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use, or disclosure.

All information you supply during this research will be confidential. Unless you give consent otherwise, your name will not appear in any report or publication of the research. Your identity, personal information, and data you provide will be safeguarded from unauthorized access or disclosure. Your personal information will be recorded separately from the data collected and your identity will be coded.

Anonymity:

Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance. Our purpose is not to collect any private information about you. While some interview questions may address personal involvement or knowledge (i.e. what is your involvement in mine closure planning?), in all cases the emphasis will be on issues of mine closure planning and policies and not on personal or private information.

You will be asked to give your informed consent to have your name recorded and used in any reports or publications that may come from this research, but this is not a requirement to participate in an interview. Should you choose to remain anonymous, your name will not be recorded or included in any writing that comes from this research. After the interview and before data is compiled into a final report/thesis, you will be sent a copy of your transcribed interview for you to review and, if you choose, change or retract any information.

Individuals involved in Northern mining and the governing of Nunavik and Québec represent a relatively small group, and thus it may not be possible to guarantee anonymity. Despite efforts to ensure anonymity, it may be possible for readers to identify you in future publications/reports if you are one of few people within your organization or company that can speak to mine closure in the North. Please be aware of this risk before participating in this interview. However, if you do choose to participate and wish to remain anonymous, every reasonable effort will be made to ensure your anonymity. You will not be identified in publications without your explicit permission.

Recording of Data:

If you consent, the researcher will be using an audio recording device to record this interview. You do not have to consent to this aspect of the interview. Should you choose not to have the interview recorded, the researcher will only take written notes.

Use, Access, Ownership, and Storage of Data:

Digital recordings and transcribed interviews will be stored securely on a password protected computer. Any hard copies of notes or transcribed interviews will be kept in the supervisor's (Dr. Arn Keeling) office in a locked filing cabinet. Only the primary researcher (Miranda Monosky) and supervisor (Dr. Arn Keeling) will have access to this data. There are no plans to archive this data or make it available to other researchers. If this changes in the future, you will be contacted for additional consent. Data will be kept for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research.

Reporting of Results:

Interview audio recordings and transcribed interviews will not be distributed, sold, or disseminated in any way, though selected quotes may be used in future publications, with permission. Upon completion, my MA thesis will be available at Memorial University's Queen Elizabeth II library, and can be accessed online at:
<http://collections.mun.ca/cdm/search/collection/theses>.

Sharing of Results with Participants:

You will be sent the transcribed version of this interview for your review. You may choose to have any information removed or refuse permission for use of the transcript. Individual participants and regional/provincial authorities will be provided a copy of the thesis that will result from this research. Results will also be communicated through presentations, posters, and reports for relevant communities and at academic conferences related to mining and Northern research.

Questions:

You are welcome to ask questions before, during, or after your participation in this research. If you would like more information about this study, please contact: Miranda Monosky, mnmmonosky@mun.ca. If you wish to contact my supervisor directly, please contact Dr. Arn Keeling, akeeling@mun.ca.

ICEHR Approval:

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:

Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw participation in the study without having to give a reason, and that doing so will not affect you now or in the future.
- You understand that if you choose to end participation **during** data collection, any data collected from you up to that point will be retained by the researcher, unless you indicate otherwise.
- You understand that if you choose to withdraw **after** data collection has ended, your data can be removed from the study up to April 30, 2020

I agree to be audio-recorded

☐ Yes

☐ No

I agree to the use of direct quotations

☐ Yes

☐ No

I allow my name to be identified in any publications
resulting from this study

☐ Yes

☐ No

By signing this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Your Signature Confirms:

- ☐ I have read what this study is about and understood the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.
- ☐ I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.
- ☐ A copy of this Informed Consent Form has been given to me for my records.

Signature of Participant

Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

Signature of Principal Investigator

Date

Appendix II: Sample Interview Questions

Introduction and Context

1. What is your email address, so I can send you a copy of the consent form for your records and can later send you a copy of this transcribed interview?
2. Begin by introducing the interviewee
 - a. What is your role within your organization?
 - b. What is the role of your organization within Nunavik?
3. How have you/your organization been involved in mine closure planning, policy development, or enforcement?

Knowledge of Mine Closure and its Impacts

4. What do you know about the positive and negative impacts of mine closure in the Northern Canada? Are there any specific examples you know of?
 - a. How might a community benefit from mining?
 - b. What negative impacts might a community experience?
5. What do you know about the social, cultural, and economic impacts of mine closure?
6. What do you believe are the most pressing risks associated with mine closure?
7. What would an ideal, successful mine closure scenario look like? What would the environmental look like? What would nearby communities look like?
8. Do you see mining as a core part of Nunavik's long-term economic development?
 - a. Does mine closure ever factor into development plans?
9. Is there anyone within your organization that specializes in monitoring the social and economic impacts of mine activities?

Mine Closure Policy Development and Enforcement

10. What are the major regional systems and policies that mine companies have to abide by in regard to mine closure? I.e. processes that are in addition to the regulations created by the government of Québec.
11. What freedom does your organization have to develop new policies that mine companies have to follow, given that it is within the province of Québec?
12. What power does your organization or other regional governing bodies in Nunavik have to enforce policies?

13. Does the KEQC have to approve of a mine closure plan?
 - a. The first one? The last one? All of them?
14. Does a mine closure plan have to go through public consultations?
15. If a mine closes and does not fulfill the promises made in its closure plan, what can your organization or other regional governing bodies in Nunavik do to hold them accountable?
16. Are you familiar with the financial securities in place that require mine companies to set aside a certain amount of money for closure?
 - a. If yes: Do you know the details of how those securities work? Like how the dollar amount is calculated, who holds on to the money, and how it's distributed after closure?
 - b. If yes: Are you confident that this system will work in the case of mine abandonment or bankruptcy?
17. What makes closure different today compared to how it was 40 years ago? How will the closure of Raglan and Canadian Royalties be different from Asbestos Hill?
 - a. How are regulations different?
 - b. How have company practices changed?
 - c. Has the presence of regional authorities resulting from the JBNQA made a difference?
18. What changes would you like to see in terms of policies and guidelines in Nunavik to address mine closure impacts? In Québec?

Inuit Engagement in Mine Closure

19. What is the value in having Inuit involved in planning for mine closure?
20. Is your organization involved in facilitating that involvement?
21. What would successful community participation in mine closure planning look like to you? What is your organization doing to facilitate this?

Appendix III: Research Summary for Recruitment



Arctic Mine Closure Strategies and Company-Community Relationships: Examining the Application of Inuit Knowledge in Closure Planning in Nunavik, Québec

Research Goal: To examine the process of mine closure planning in Nunavik, and the role of Inuit participation in that process.

About the Researcher: My name is Miranda Monosky and I am a graduate student in geography studying at Memorial University in St. John's, Newfoundland and Labrador, under the supervision of Dr. Arn Keeling and supported by the Toward Environmentally Responsible Resource Extraction Network (TERRE-NET). I am from British Columbia and completed a Bachelor of Arts degree at the University of the Fraser Valley where I developed an interest in environmental management and historical and contemporary Indigenous issues.

Proposed Research: The purpose of my research is to understand how mine closure planning is governed in Nunavik, what standard industry practices for mine closure are, and what knowledge and attitudes about mine closure exist within government organizations and mine companies. I am also interested in understanding the ways that Inuit are being engaged with in the process of mine closure planning in Nunavik.

Research Questions:

1. What do regional governments and industry actors know about the impacts of mine closure?
2. What legislative power do regional governing bodies in Nunavik have to control the process of mine closure planning?
3. What are the highest priority concerns for different stakeholders? How do they think these concerns should be addressed?
4. How do these factors and different understandings facilitate or limit Inuit participation in mine closure planning?

Research Activities: Data collection for this research will have three main components. First, I will be reviewing mine closure plans from across Northern Canada to understand common industry practices in mine closure. Second, I will conduct semi-structured interviews with local, regional, and provincial governments and Inuit organizations as well as employees of mine companies that have operations in the North. Finally, I will be attending and participating in the Raglan closure subcommittee meetings, held three times a year, to observe how they are approaching mine closure and Inuit participation in that process. This research will contribute to a deeper understanding of mine closure practices in the North, both from an industry and government perspective, which can lead to improved mine closure plans that better reflect the needs, values, and priorities of Northern communities.

Contact Information

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